



8-4-04

AF/2177
ITW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re: Patent Application of Lindquist : Examiner: Channavajjala, Srirama T/
Serial No.: 09/502,728 : Group Art Unit: 2177
Filed: February 11, 2000 : Docket No.: 013212.0107PTUS
For: Reciprocal Maintenance Free : Confirmation No.: 5595
Community Membership Data :
Management System :

Certificate of Mailing Under 37 C.F.R. 1.10

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August 2, 2004
Date

Elaine C. VonSpreckelsen
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MAIL STOP APPEAL BRIEF – PATENTS
COMMISSIONER FOR PATENTS
PO BOX 1450
ALEXANDRIA, VA 22313-1450

Dear Sir or Madam:

APPELLANT'S APPEAL BRIEF

Appellant's Appeal Brief was timely filed pursuant to 37 C.F.R. §1.192 because it was filed within two months of June 1, 2004, which is the Office date of receipt of the notice of appeal.

Appellant believes that the claims appealed are patentable as argued in the Brief. If the Examiner has any questions concerning Appellant's Brief or the Arguments presented in the Brief and feels that an interview pursuant to MPEP sections 713.05 and 713.09 may be helpful in resolving the issues on appeal, attorneys for the Appellant would urge the Examiner to contact the attorneys for Appellant to arrange such an interview, even if the refiling of this application is necessary for this purpose.

Appellant's attorneys respectfully solicit the Board to remand this case to the Examiner with instructions to allow the case pursuant to 37 C.F.R. §1.197(a).



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Claims



List of References

U.S. Patent No. 6,101,480 issued to Conmy.
U.S. Patent No. 5,754,306 issued to Taylor.
U.S. Patent No. 6,253,203 issued to O'Flaherty
WO 94/16398 applied for by Page

OUTLINE OF APPEAL BRIEF

1.) REAL PARTY IN INTEREST

37 C.F.R. §1.192(c)(1) requires Appellant to identify the real party in interest. The party named in the caption of the Brief is Hallmark Cards, Inc.

A full list of inventors is: Wesley DeWayne Lindquist

The subject matter of the invention was derived from research efforts undertaken by Hallmark Cards at the Hallmark Cards facilities in Kansas City, MO.

The inventor assigned the invention to Hallmark Cards Inc., located at P.O. Box 419126, Kansas City, MO 64141-6126. The assignment was submitted to the Commissioner of Patents and Trademarks with an accompanying recordation cover sheet signed February 11, 2000. The frame and reel number for this assignment could not be located on the online USPTO assignment database, thus a copy of the assignment and accompanying recordation cover sheet are herein enclosed.

The real party of interest is accordingly Hallmark Cards, Inc. because Hallmark Cards, Inc. owns the entire right, title and interest to the present invention.

2.) RELATED APPEALS AND INTERFERENCES

37 C.F.R. §1.192(c)(2) requires Appellant to identify by serial number and filing date all appeals and interferences known. Currently, no appeals or interferences are known by any party.

3.) STATUS OF THE CLAIMS

37 C.F.R. §1.192(c)(3) requires the Appellant to give the current status of all claims in the prosecution. Claims 1-15, 17-24, and 26-32 are pending. In a Final Office Action dated February 25, 2004, the Examiner rejected claims 1-3 and 8-10 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,101,480 issued to Conmy ("the

Conmy patent”), et al., and rejected claims 4-7 and 11-14 under 35 U.S.C. §103(a) as being unpatentable over the Conmy patent and further in view of U.S. Patent No. 5,754,306 issued to Taylor et al. (“the Taylor patent”). Claims 15-16 and 24-25 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,253,203 issued to O’Flaherty et al. (“the O’Flaherty patent”) and claims 17-23 and 26-32 under 35 U.S.C. §103(a) as being unpatentable over the O’Flaherty patent as applied to claim 15 and 24 above and further in view of WO 94/16398 applied for by Page (“Page”). The Appellant appeals the final rejection of claims 1-15, 17-24, and 26-32.

4.) STATUS OF AMENDMENTS

37 C.F.R. 1.192(c)(4) requires the Appellant’s Brief to provide a statement of the status of any amendment filed subsequent to the Final rejection. No amendment has been filed subsequent to the Final rejection.

5.) SUMMARY OF THE INVENTION

37 C.F.R. 1.192 (c)(5) requires Appellant to give a summary of the invention. The pending claims define a community membership data management system that identifies each user and their associate communities of interest. Each community has a user defined permission to access a subset of the user’s data, which data is shared among some or all of the members of that community. When the user’s data is updated, the update is automatically propagated to all of the identified associated communities of interest and the members of those communities who have permission to receive that data. Thus, each user of the system has their computerized calendar and address book system automatically populated with data, which data is continuously and automatically updated. The confidentiality and security of the user data is maintained by defining a set of permissions among the communities, members of communities and for each user to ensure that the user maintains control of the propagation of their data. Each user therefore maintains a “virtual user image” in each of the communities, where the members of that community view only one aspect of the user’s personal data.

6.) ISSUE

37 C.F.R. §1.192(c)(6) requires the Appellant to state all the issues on appeal. There are four issues on appeal and they should all be reversed. First, whether the final

rejection of claims 1-3 and 8-10 under 35 U.S.C. §102(e) as being anticipated by the Conmy patent should be reversed. Second, whether the final rejection of claims 4-7 and 11-14 under 35 U.S.C. §103(a) as being unpatentable over the Conmy patent and further in view of the Taylor patent should be reversed. Third, whether the final rejection of claims 15-16 and 24-25 under 35 U.S.C. §102(e) as being anticipated by the O'Flaherty patent should be reversed. Fourth, whether the final rejection of claims 17-23 and 26-32 under 35 U.S.C. §103(a) as being unpatentable over the O'Flaherty patent as applied to claim 15 and 24 above and further in view of Page should be reversed.

Appellant submits that the 35 U.S.C. §102(e) rejection of claims 1-3 and 8-10 fails to set forth a prima facie showing that the claims are anticipated because:

- A. The maintenance of a single address list (212) of users in the Conmy system fails to correspond to Appellant's claimed "plurality of subscriber address books".
- B. The Examiner fails to reference a single instance in the Conmy patent where the individual users are described as creating and maintaining their own personal address books.
- C. The need to coordinate multiple copies of an individual's address data in multiple subscriber's personal address books is not even hinted at in the Conmy Patent, since there is no "plurality of subscriber address books" as claimed by Appellant.

Appellant submits that the 35 U.S.C. §103(a) rejection of claims 1-27 set forth in the Final Office Action, dated 29 July 2003, fails to set forth a prima facie showing of obviousness because:

- (1) the Examiner has failed to cite and apply references which contain all of the claimed elements or limitations of Appellant's claimed invention, and
- (2) the Examiner has not shown where the prior art, the nature of the problem to be solved, or the knowledge of those skilled in the art provide any motivation or suggestion to combine elements in the prior art relied upon by the Examiner to render the claimed invention obvious, and instead has relied upon hindsight to reconstruct Appellant's claimed invention from the prior art.

7.) GROUPING OF CLAIMS

Group	Claims That Stand or Fall Together
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I	1-15, 17-24, and 26-32
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37 C.F.R. 1.192(c)(7) requires the Appellant to group the claims in the application for appeal purposes. The Appellant groups the claims into a single group. Group I contains claims 1-15, 17-24, and 26-32, which are directed to a reciprocal, maintenance free community membership data management system.

8.) ARGUMENT

To facilitate a logical and organized presentation of the arguments, the two 35 U.S.C. §102(e) rejections are presented below first followed by the two 35 U.S.C. §103(a) rejections.

I. Examiner's Position - Rejection under 35 U.S.C. §102(e) – The Conmy Patent

The Examiner rejected claims 1-3, 8-10 under 35 U.S.C. §102(e) as being anticipated by the Conmy patent, noting with respect thereto:

12. As to claims 1 and 8, Conmy teaches a system which including 'a data Management system for automatically maintaining address information in user address books' [see Abstract, col 1, line 60-65, fig 1, element 202, element 212], examiner interpreting address book corresponds to Conmy's electronic calendar that maintains name and address book for users as detailed in col 1, line 62-64, 'means for storing, for each of a plurality of subscribers, a subscriber address book comprising a plurality of entries, each entry corresponding to a named individual' [col 1, line 60-67, col 2, line 1-3, col 3, line 45-55, fig 1], Conmy specifically teaches database element 200 stores one or more profiles, element 202, one or more calendar files element 210, and one or more name and address files element 212 as detailed in fig 1, further it is noted that name and address files element 212 containing list all of the names and electronic mail addresses for a plurality of all of the users as detailed in col 3, line 51-53, also it is noted that Conmy specifically teaches for example name and address file may be created for each invitee, [col 3, line 52-53], 'means for storing a set of individual data, including address data, for each of said individuals listed in each subscriber address book for said plurality of subscribers' [col 3, line 38-49, line 66-67, col 4, line 1-5], subscribers corresponds to users, individual data including address data for each individual corresponds to user profiles associated with respective names and addresses as detailed fig 1, element 202, 212, 'responsive to a change

in a set of said individual data associated with an identified individual, for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual' [col 8, line 66-67, col 9, line 1-5, col 10, line 34-39], Conmy teaches specifically name/address book is kept for each person are in the same database, so that calendar information may be exchanged, identified individual corresponds to user based on user profile.

II. Appellant's Characterization of the Conmy Patent

The Conmy patent discloses a meeting reservation system for a networked computer system that contains a single address list (212) of the users who are connected to the network. The single list of users includes the user's name and address [column 3, lines 50-52]. The Conmy system also stores profile data (202) that notes the user's hours of work, physical location, etc and calendar data (210) that catalogs existing meeting commitments [column 3, lines 56-64]. The profile and calendar data is necessary for the Conmy system to determine a user's availability for meetings that are to be scheduled [column 5, lines 45-62]. The Conmy system is therefore a single flat file that contains n entries, one for each user, including the user profile data. The Conmy patent fails to show or suggest a system that stores a plurality of user personal address books, each of which contains a plurality of entries input by the user, with each entry containing the identity of an individual as well as data associated with that individual, such as address data. In fact, the Conmy patent does not enable a user to generate their own personal address book, since there is a single common address list (212) for all users. The Conmy patent also fails to show or suggest the coordinated management of the users' personal address books in the form of address updates, since there are no personal address books in the Conmy patent and this system is exclusively directed to the task of scheduling meetings and is exclusively a single layer system of n user profiles, all of which are stored in a single address list (212). Therefore, the propagation of changes, as claimed by Appellant, is impossible to implement in the Conmy system, since this is a single layer system, with the user profile changes impacting only a single entry in the single address list (212).

III. Appellant's Position

In contrast, Appellant's address book maintenance system is a hierarchical system that contains a plurality of user address books, each of which contains a plurality of entries, one for each individual selected by the user, including individual address data. Appellant's system is therefore a multi-layer system wherein n address books are maintained by Appellant's system, each of which contains m entries, and each entry containing k data entries, each associated with the individual identified by that entry. Appellant's system also automatically propagates changes to the address book entry data corresponding to an identified individual, as entered by a subscriber into their address book, to all other address book entries corresponding to the identified individual in the address books of other subscribers. Thus, each subscriber maintains their own address book of individuals, and Appellant system ensures that all the corresponding entries in all of the subscribers' address books are consistent. For example, when an individual moves, their address data, when changed by one subscriber, is automatically changed for all subscribers who have this individual listed in their personal address book. This structure is clearly stated in claim 1 for example:

A data management system for automatically maintaining address information in a plurality of subscriber address books, comprising:
means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including address data for each of said named individuals; and
means, responsive to a change in a set of said individual data associated with an identified individual, for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

The Examiner has again morphed the plain meaning of the Conmy patent away from the meeting scheduling focus into the Examiner's interpretation of Appellant's address book system. In particular, the Examiner is correct in noting: "firstly Conmy is directed to automated scheduling techniques for network based electronic calendars, schedulers, and tasking system for groups of users, more specifically scheduling events involving multiple participants or users based on user profiles, user calendar events that associated with names and addresses." However, the Examiner then converts the distributed elements of the single address file (212) into multiple independent "one or

more user profile, one or more user personal address books" even though the Conmy Patent is devoid of such a suggestion. The Conmy system uses a database to manage the data stored therein and retrieves data from the distributed segments of the single address file (212), since there are potentially many servers in the Conmy system and these servers are likely to be distributed in their locations. **The need to coordinate multiple copies of an individual's address data in multiple subscriber's personal address books is not even hinted at in the Conmy patent, since there is no "plurality of subscriber address books" as claimed by Appellant.**

In addition, the Examiner's arguments are confusing, since the points made by the Examiner fail to address the core issue of the total absence of Appellant's claimed "plurality of subscriber address books" in the Conmy system. The Conmy system is directed exclusively to a meeting scheduling system and as such, it maintains a single address file (212) that lists all users and does not even hint at the ability of subscribers to create and maintain their own personal address books, which list a plurality of individuals and their personal address data. As noted in the Conmy Patent:

It is another object of the invention to provide an electronic calendar with group scheduling that operates in a client/server environment, where a name and address book is stored for users within a domain, and a profile document is stored for each user with user availability information contained in the profile. (column 1, lines 60-65)

Instead of the clear meaning of this description that there is a single address file (212) that stores the address data of all users, the Examiner has drawn a correspondence between Appellant's claimed "a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual" and the Examiner's assertion "that names and address are related to user profiles or treated to be users personal address book used for group scheduling based on user availability." **The maintenance of a single address list (212) of users in the Conmy system fails to correspond to Appellant's claimed "plurality of subscriber address books".**

Furthermore, the Examiner converts the distributed nature of the single address list (212) of the Conmy patent into Appellant's claimed "plurality of subscriber address

books" by the following remarks: "Conmy specifically suggests for example Fig 1 may comprise one or more databases element 200 storing one or more profiles element 202, therefore, storing one or more user profile, one or more user personal address books associating individual address data is integral part of Conmy's teaching." However, **the Examiner fails to reference a single instance in the Conmy patent where the individual users are described as creating and maintaining their own personal address books.**

The above-noted arguments are applicable to the Examiner's comments and the following summary comments are appropriate to again emphasize.

A. The maintenance of a single address list (212) of users in the Conmy system fails to correspond to Appellant's claimed "plurality of subscriber address books".

B. The Examiner fails to reference a single instance in the Conmy patent where the individual users are described as creating and maintaining their own personal address books.

C. The need to coordinate multiple copies of an individual's address data in multiple subscriber's personal address books is not even hinted at in the Conmy Patent, since there is no "plurality of subscriber address books" as claimed by Appellant.

Thus, the Examiner's attempt to read the meeting scheduling system of the Conmy patent on Appellant's data management system for automatically maintaining address information in a plurality of subscriber address books fails due to the fact that a meeting schedule is NOT an address book that is created and maintained by an individual subscriber. The fact that the Conmy system maintains a single address list (inaccessible by the users) of all the users who are served by the system does not by any stretch of the imagination correspond to Appellant's system that enables subscribers to create their own personal address books, listing individuals and their address information, and Appellant's claimed automated updating of the address information in each subscriber's personal address book when the address information for an individual listed in the address book changes.

Appellant believes that independent claims 1 and 8 are allowable under 35 U.S.C. §102(e) over the cited Conmy Patent since the Conmy Patent fails to show or suggest Appellant's recited "means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including address data for each of said named individuals," or "means, responsive to a change in a set of said individual data associated with an identified individual, for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual."

Appellant believes that claims 2-3, 9-10 are allowable under 35 U.S.C. §102(e) over the cited Conmy patent since these claims depend on an allowable base claim. Appellant also believes that claims 4-7, 11-14 are allowable under 35 U.S.C. §103 over the Conmy patent as applied to claims 1, 8 and further in view of the Taylor patent since these claims depend on an allowable base claim.

IV. Examiner's Position - Rejection under 35 U.S.C. §102(e) – The O'Flaherty Patent

The Examiner further rejected claims 15-16, 24-25 under 35 U.S.C. §102(e) as being anticipated by the O'Flaherty patent, noting with respect thereto:

21. As to claims 15, 24, O'Flaherty teaches a system which including 'a data management system for automatically maintaining user data among a plurality of communities, each of which contains a plurality of members' [see Abstract, col 2, line 21-29], database management system corresponds to O'Flaherty's fig 1, automatically maintaining user data among a plurality of communities corresponds to collection of personal data of individual user or consumer or customer for example proliferation of membership as detailed in col 2, line 21-29, plurality of communities corresponds to banking, shopping, and the like as detailed in col 1, line 57-63, 'means for storing, for each of a plurality of communities, community membership data comprising a plurality of entries, each entry corresponding to a named individual who is a member of said community' [col 1, line 57-67, col 2, line 57-67, col 7, line 1-15], examiner interpreting plurality of entries, each entry corresponding to a named individual corresponds to O'Flaherty fig 2A, 3A, community membership corresponds to either banking, credit card transaction profile and the like as detailed in col 1, line 57-60, 'storing a set of individual data for each of said individuals listed as a member in each community for said plurality of communities' [see fig 2A, 3A], O'Flaherty specifically teaches for example a logical model of the secure data warehouse that containing customer table element 202

having identity information, personal information, as detailed in fig 2A, 3A, 'providing a user with access to a set of said individual data of an identified individual who is a member of a same community as said user' [col 8, line 35-49], O'Flaherty teaches privileged view element 262 permits viewing, analysis, and alteration of information, more specifically user to view, specify, and change consumer privacy preferences as detailed in col 8, line 45-49, 'responsive to a change in individual data associated with said identified individual, for propagating said change to all of said plurality of communities in which said individual is a member' [col 8, line 35-47, col 10, line 9-16, line 32-39], O'Flaherty teaches updating consumer or customer's privileged requirements for example inserting new customers, deleting old customer, and customer's profile and like, further it is also noted that detailed customer profile is collected and propagated to database as detailed in col 10, line 35-39.

V. Appellant's Characterization of the O'Flaherty Patent

The O'Flaherty patent discloses a privacy enhanced database that controls access to the consumer data stored therein via a dataview operation which has a privacy mask. Each consumer can set a consumer privacy parameter that defines the range of access permitted to the data that they have stored in the database. The O'Flaherty privacy scheme reviews a requesting entity's data privileges and compares these with the consumer privacy parameter set by the consumer who owns the portion of the data requested by the requesting entity. If the requesting entity's data privileges match the consumer privacy parameter set by the consumer, then access to the data is permitted. However, the O'Flaherty system does not operate to manage a plurality of community address books or automatically change an individual's address book data for all subscribers who are members of the same community and who have this individual listed in their personal address book.

VI. Appellant's Position

In contrast, Appellant's address book maintenance system propagates changes to the address book entry data corresponding to an identified individual, as entered by a subscriber into their address book, to all other address book entries corresponding to the identified individual in the address books of other subscribers, where the subscriber is a member of the same community as the identified individual. Thus, each subscriber maintains their own address book of individuals, and Appellant's system ensures that all

the entries in all of the subscribers' address books are consistent. For example, when an individual moves, their address data, when changed by one subscriber, is automatically changed for all subscribers who are members of the same community and who have this individual listed in their personal address book. This structure is clearly stated in claim 15 for example:

A data management system for automatically maintaining user data among a plurality of communities, each of which contains a plurality of members, comprising:

means for storing community membership data for a plurality of communities, each said community comprising a plurality of entries, each entry corresponding to a named individual who is a member of said community and including a set of individual data for each of said individuals;

means for providing a user with access to a set of said individual data of an identified individual who is a member of a same community as said user; and

means, responsive to a change in individual data associated with said identified individual, for propagating said change to all of said plurality of communities in which said individual is a member.

Thus, Appellant believes that claims 15, 24 are allowable under 35 U.S.C. §102(e) over the cited O'Flaherty Patent.

VII. Examiner's Position - Rejection under 35 U.S.C. §103(a) – The Conmy Patent in view of the Taylor Patent

The Examiner rejected claims 4-7 and 11-14 under 35 U.S.C. §103(a) as being unpatentable over the Conmy patent as applied to claims 1 and 8 above, and further in view of the Taylor patent, noting with respect thereto:

16. As to claims 4 and 11, Conmy teaches a system including 'storing data, individual data' [see col 3, line 44-50], Conmy specifically teaches one or more databases that store one or more profiles, calendar files, addresses files and like as detailed in col 3, line 45-50. It is however, noted that Conmy does not teach 'storing access level data to delimit which ones of said sets of address book data are authorized to receive said change to sets of address book data'. On the other hand, Taylor teaches a system which including 'storing access level data to delimit which ones of said sets of address book data are authorized to receive said change to sets of address book data'[col 26, line 49-56, col 28, line 28-32]

It would have been obvious one of the ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Taylor et al. into

electronic calendar with group scheduling and automated scheduling of Conmy et al. because Conmy is directed to network based electronic calendars, schedulers, and tasking systems for groups of users [see col 1, line 21-23], while Taylor is directed to automation of electronic communication system, more particularly, relates to an integrated system for electronic mail, facsimile transmission, and synchronization among distributed computers [see col 1, line 12-16], both are directed specifically address cards or address book that manages a database of names, addresses, phone numbers, electronic mail and like [see Taylor: col 7, line 47-55; Conmy: see col 3, line 38-43]. One of ordinary skill in the art at the time of appellant's invention would have been motivated to modify Conmy's reference, more specifically modifying Conmy's fig 1 to incorporate properties of fig 21, element 2200 of Taylor that including guest privileges or access level(s) because that would have allowed users of Conmy's network based electronic calendars, schedulers, taking system for groups of users to control which relative combinations of individual access levels to various information available on the databases(s) satisfies his or her needs as suggested by Taylor et al.[see col 3, line 64-67, col 4, line 1-11].

17. As to Claims 5 and 12, Taylor teaches a system which including 'defining groups of address books, which contain an entry corresponding to said identified individual that are authorized to received said change to said individual data'[col 26, line 49-56, fig 21], individual data corresponds to guest privileges.

18. As to Claims 6 and 13, Taylor teaches a system which including 'retrieving data from a public database to verify a set of individual data associated with an identified individual'[col 28, line 34-42].

19. As to Claims 7 and 14, Taylor teaches a system which including 'responsive to said means for retrieving identifying a change in data in said individual data associated with an identified individual, for activating said means for propagating [col 10, line 28-43].

VIII. Appellant's Characterization of the References

Appellant has carefully reviewed the Conmy patent and the O'Flaherty patent, as well as the Examiner's comments. Appellant provides the following arguments in order to traverse the Examiner's rejections of claims 4-7 and 11-14.

The Appellant disagrees with the Examiner's 35 U.S.C. §103(a) rejection of claims 4-7 and 11-14 as being unpatentable because the Examiner failed to establish a prima facie case of obviousness of Appellant's claimed invention for the following two reasons:

A. The Examiner has failed to cite and apply prior art which contain all of the

claimed elements or limitations of Appellant's claimed invention.

B. The Examiner has failed to identify any motivation or suggestion to combine elements from the prior art to render the claimed invention obvious, and instead has relied upon hindsight to reconstruct Appellant's claimed invention from the prior art.

None of the prior art relied upon by the Examiner in the rejection of claims 4-7 and 11-14 contain the following elements or limitations contained in all the claims:

1.) means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including address data for each of said named individuals;
or

2.) means, responsive to a change in a set of said individual data associated with an identified individual, for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

The cited Conmy and Taylor patents fail to show or suggest an address book maintenance system that propagates changes to the address book entry data corresponding to an identified individual, as entered by a subscriber into their address book, to all other address book entries corresponding to the identified individual in the address books of other subscribers, where the subscriber is a member of the same community as the identified individual.

The Examiner has also not identified any suggestion or motivation in the cited prior art, or the prior art generally, or from the knowledge of those skilled in the art, or the nature of the problem to be solved, for combining the cited prior art applied in a manner to render Appellant's claimed invention obvious.

IX. Examiner's Position - Rejection under 35 U.S.C. §103(a) – The O'Flaherty Patent in view of Page

The Examiner rejected claims under 35 U.S.C. §103(a) as being unpatentable over the O'Flaherty patent as applied to claims 17-23 and 26-32, noting with respect thereto:

23. As to Claims 17 and 26, O'Flaherty teaches a system which including 'defining a set of data sharing permissions, each of which define access members of by a community'[fig 2B], especially security information CaT1, CAT2, CAT3, also see fig 3C, element 208, 'sharing said individual data among predetermined members of each community who are identified by said set of permissions'[col 5, line 10-21, col 8, line 35-44]. It is however, noted that O'Flaherty does not specifically teach 'subset of the member's data'. On the other hand, Page teaches a system which including 'subset of the member's data' [see page 25, line 3-23, fig 4, fig 7].

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Page into enforcing privacy constraints on a database management system of O'Flaherty because both O'Flaherty, and Page are directed to database management system that is used to collect, store, analyze data [see Abstract], while Page is directed to accessing data by identifying membership of the item to particular groups, further groups allow data to be obtained for all items which are within the group [see Abstract]. One of ordinary skill in the art at the time of applicant's invention would have been motivated to modify O'Flaherty et al. reference, more specifically modifying O'Flaherty's logical model fig 2A, 3A to incorporate Page's groups and subgroup table as detailed in fig 4 because that would have allowed uses of O'Flaherty database management system that is used to collect, store, analyze data to specifically control which relative combinations of subset of the member's data available from various information sources, further implementing privacy preferences of O'Flaherty [see col7, line 13-14] satisfies his or her needs as suggested by Page [see page 21, line 12-17].

24. As to Claim 18 and 27, O'Flaherty teaches a system which including 'retrieving data from a public database to verify a set of individual data associated with an identified individual' [see fig 3A, element 204], element 204 is directed to customer table containing various fields of each individual data associated with an identified individual such as a name, address, account no. and like as detailed in fig 3A.

25. Claims 19 and 28 are individually similar to scope to Claims 18 and 27 and are therefore, rejected under similar rationale.

26. As to Claims 20 and 29, O'Flaherty teaches a system which including 'a set of individual data of an identified individual for generating at least one gift giving selection for said identified individual'[fig 3A, col 13, line 56-63, col 14, line 40-44].

27. As to Claims 21 and 30, O'Flaherty teaches a system which including 'user approving at least one of said gift giving selection for said identified individual, for fulfilling said gift giving selection' [fig 3A, col 13, line 56-63, col 14, line 40-44].

28. As to Claims 22 and 31, O'Flaherty teaches a system which including 'transmitting said gift giving selection to a third party vendor'

[col4, line 30-34, col 9, line 9-12], third party corresponds to O'Flaherty's third party detailed in fig 3B, element 112.

29. As to Claims 23 and 32, O'Flaherty teaches a system which including 'retrieving gift selection data from a third party vendor'[col 4, line 30-34, col 9, line 9-12], 'displaying images [see fig 9, element 260,264,266], 'responsive to a user approving at least one of said gift giving selections for said identified individual, for fulfilling said gift giving selection' [fig 3A, col 13, line 56-63, col 14, line 40-44].

X. Appellant's Characterization of the References

Appellant has carefully reviewed the O'Flaherty patent and Page, as well as the Examiner's comments. Appellant provides the following arguments in order to traverse the Examiner's rejections of claims 17-23 and 26-32.

As described above, the O'Flaherty patent discloses a privacy enhanced database that controls access to the consumer data stored therein via a dataview operation which has a privacy mask. Each consumer can set a consumer privacy parameter that defines the range of access permitted to the data that they have stored in the database. The O'Flaherty privacy scheme reviews a requesting entity's data privileges and compares these with the consumer privacy parameter set by the consumer who owns the portion of the data requested by the requesting entity. If the requesting entity's data privileges match the consumer privacy parameter set by the consumer, then access to the data is permitted. However, the O'Flaherty system does not operate to manage a plurality of community address books or automatically change an individual's address book data for all subscribers who are members of the same community and who have this individual listed in their personal address book.

Page discloses an apparatus for accessing data from data storage devices. These storage devices may include different types of data storage devices and contain groups and subgroups of information. The apparatus disclosed in Page provides for accessing this information among these different types of data storage devices. Once a communication link is established to one of these data storage devices, instructions effect the transfer of data and the instructions comprise a name associated with a group or subgroup of data to be transferred. One bit flags are associated with individual data pieces to reflect its membership to a particular group.

The Appellant disagrees with the Examiner's 35 U.S.C. §103(a) rejection of claims 17-23 and 26-32 as being unpatentable because the Examiner failed to establish a prima facie case of obviousness of Appellant's claimed invention for the following two reasons:

A. The Examiner has failed to cite and apply prior art which contain all of the claimed elements or limitations of Appellant's claimed invention.

B. The Examiner has failed to identify any motivation or suggestion to combine elements from the prior art to render the claimed invention obvious, and instead has relied upon hindsight to reconstruct Appellant's claimed invention from the prior art.

None of the prior art relied upon by the Examiner in the rejection of claims 17-23 and 26-32 contain the following elements or limitations contained in all the claims:

- 1.) means for storing community membership data for a plurality of communities, each said community comprising a plurality of entries, each entry corresponding to a named individual who is a member of said community and including a set of individual data for each of said individuals;
- 2.) means for providing a user with access to a set of said individual data of an identified individual who is a member of a same community as said user; or
- 3.) means, responsive to a change in individual data associated with said identified individual, for propagating said change to all of said plurality of communities in which said individual is a member.

The cited O'Flaherty patent and Page reference fail to show or suggest a data management system for automatically maintaining user data among a plurality of communities, each of which contains a plurality of members.

The Examiner has also not identified any suggestion or motivation in the cited prior art, or the prior art generally, or from the knowledge of those skilled in the art, or the nature of the problem to be solved, for combining the cited prior art applied in a manner to render Appellant's claimed invention obvious.

XI. Discussion of Lack of Prima Facie Obviousness

The courts and the MPEP state that to reject a claim for obviousness under 35

U.S.C. §103(a), the Examiner must make a prima facie showing of obviousness before the burden shifts to the Appellant to prove non-obviousness.

Appellant believes that the Examiner has not made a prima facie showing of obviousness for the claimed invention under 35 U.S.C. §103(a). The prior art relied upon by the Examiner must disclose all of the claim elements or limitations in order to make a prima facie showing of obviousness. Also, the MPEP and courts have stated that the Examiner must show the following:

1.) a motivation or suggestion to combine references, 2.) A reasonable expectation of success from combining the references, and 3.) the combined references teach all of the limitations of the claimed invention. MPEP 706.02(j); See also *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991).

If any of these requirements are not met, the combination of the references does not establish a prima facie showing of obviousness for the claimed invention. The Examiner has not met any of the requirements of this test.

XII. Comparison of the Claims with the Prior Art Illustrating the Failure of the Prior Art to Disclose Key Claimed Elements or Limitations

Regarding independent claims 1 and 8 on appeal, claim 1 is the broadest independent claim and is illustrative of claims 1-14 for the purposes of this appeal. The following analysis of the claims is summarized in claim chart form with regard to the independent claim 1, since independent claim 8 is analogous in scope. All of the remaining claims depend on independent claims 1 and 8 are therefore distinguishable over the prior art in the same manner as the independent claims and specifically independent claim 1.

Regarding independent claims 15 and 24 on appeal, claim 15 is the broadest independent claim and is illustrative of claims 15, 17-24, and 26-32 for the purposes of this appeal. The following analysis of the claims is summarized in claim chart form with regard to the independent claim 15, since independent claim 24 is analogous in scope. All of the remaining claims depend on independent claims 15 and 24 are therefore distinguishable over the prior art in the same manner as the independent claims and

specifically independent claim 15.

XIII. Claim Chart

The following claim chart compares Appellant's claim 1 with the cited Conmy Patent and the Taylor patent that were noted above and relied upon by the Examiner in the rejection of claim 1, with the elements not shown in the cited Conmy patent and the Taylor patent being underlined. The failure to these references to teach all of the elements recited in claim 1 (and analogous limitations in independent claim 8) supports Appellant's position that the Examiner has failed to make a prima facie showing of obviousness under 35 U.S.C. §103(a), thereby rendering claims 1-14 allowable.

Following this claim chart is a second claim chart that compares Appellant's claim 15 with the cited O'Flaherty patent and the Page reference that were noted above and relied upon by the Examiner in the rejection of claim 15, with the elements not shown in the cited O'Flaherty patent and the Page reference being underlined. The failure to these references to teach all of the elements recited in claim 15 (and analogous limitations in independent claim 24) supports Appellant's position that the Examiner has failed to make a prima facie showing of obviousness under 35 U.S.C. §103(a), thereby rendering claims 15, 17-24, and 26-32 allowable.

Appellant's Claim 1

A data management system for automatically maintaining address information in a plurality of subscriber address books, comprising:

means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including at least address data for said named individuals; and

Conmy Patent

"...an electronic calendar with group scheduling that operates in a client/server environment, where a name and address book is stored for users within a domain, an a profile document is stored for each user with user availability information contained in the profile." (Col. 1, Lines 60-65)

"...an electronic calendar with group scheduling that operates in a client/server environment, where a name and address book is stored for users within a domain, an a profile document is stored for each user with user availability information contained in the profile." (Col. 1, Lines 60-65)

"...an electronic calendar with group scheduling that may automatically coordinate scheduling of invitees, where the invitees name/address (or equivalent information) reside on multiple servers." (Col.1, Lines 66-67; Col. 2, Lines 1-3)

"...may comprise one or more databases 200 having stored thereon one or more profiles 202, one or more calendar files 210 and one or more name and addresses files. Name and address files 212 may comprise a list of all the names and electronic mail addresses for a plurality or all of the users on an electronic calendar system. A name and address file may be created for each invitee. For example, conference rooms, equipment, an other resources may be included as invitees." (Col. 3, Lines 47-55)

Taylor Patent

"1. A system for efficiently sending a message to users of electronic mail and facsimile transmission..." (Col. 34, Lines 13-14)

"...means for storing in each computer record: (i) a telephone number of a modem by which the computer system associated with said computer record, acting as a host computer, connects with other computer systems; and (ii) a protocol specification to be used when connecting to said computer system..." (col. 34, Lines 42-47)



Appellant's Claim 1 (Cont.)

means responsive to a change in data associated with an identified individual for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

Conmy Patent (Cont.)

"...the invention may be implemented by a software application designed to fun on a client/server architecture such as Notes4.5, in which a name/address book is kept for each person at each domain. In other words. The electronic mail address and calendar information may be exchanged via electronic mail." (Col. 8, Lines 66-67; Col. 9, Lines 1-5)

"...the Organizer front end is used with the cc:Mail DB8 back end to provide an equally powerful C&S product line for cc:Mail customers. Interoperability between Notes-based and cc:Mail-based C&S users is assured through the bi-directional cc:Mail Message Transfer Agent (MTA)." (Col. 10, Lines 34-39)

Taylor Reference (Cont.)

"...means for determining the recipient's computer system from the electronic mail address of said recipient, when said message is sent to a recipient by electronic mail..." (Col.34, Lines 48-50)

15. A data management system for automatically maintaining user data among a plurality of communities, each of which contains a plurality of members, comprising:

"A method, apparatus, article of manufacture, and a memory structure for storing and retrieving data in a database implementing privacy control is disclosed." (Abstract, Lines 1-3)

"Another example of an increase in the collection of personal data is evidenced by the recent proliferation of "membership" or "loyalty" cards. These cards provide the consumer with reduced prices for certain products, but each time the consumer uses the card with the purchase, information about the consumer's buying habits is collected. The same information can be obtained in an on-line environment, or purchases with smart cards, telephone cards, and debit or credit cards." Co. 2, Lines 21-29)

"1. Apparatus for accessing data, comprising means (15, 18) for establishing a communication like to data storage means; characterized by means (45) ..." (Pg 1, lines 3-5)

means for storing community membership data for a plurality of communities, each said community comprising a plurality of entries, each entry corresponding to a named individual who is a member of said community and including a set of individual data for each of said individuals;

"Similar uses of personal data occur in other industries. For example, in banking, the buying patterns of consumers can be divined by analyzing their credit card transaction profile or their checking/savings account activity, and consumers with certain profiles can be identified as potential customers for new services, such as mortgages or individual retirement accounts. Further, in the telecommunications industry, consumer telephone calling patterns can be analyzed from call-detail records, and individuals with certain profiles can be identified for selling additional services, such as a second phone line or call waiting." (Col. 1, Lines 56-67)

"...for locally storing sets of instruction to effect the transfer of data from said storage means, wherein each set of instructions has a name (40) associated therewith and separately defined attributes (41) identifying membership of the item to particular groups, further comprising means (15) for performing operation on said attributes." (Pg 35, Lines 5-15)

"The apparatus comprises a data storage device, storing a database table comprising a plurality of data columns an at least one data control column for storing data control information reflecting consumer privacy parameters, wherein the database table comprises an identity segment for storing identity information and a personal information segment for storing personal information, and a processor, operatively coupled to the data storage device, the processor implementing a dataview suite for presenting data retrieved from the database table in accordance with the data control information." (Col. 2, Lines 57-67)

means for providing a user with access to a set of said individual data of an identified individual who is a member of a same community as said user; and

"The privileged view 262 permits viewing, analysis, and alteration of all information. The privileged view 262 will be supplied only to privileged (Class "A" applications 110B, such as those required for administration and/or maintenance of the database (e.g. for inserting new customers, deleting ex-customers, handling address changes), and to those applications which handle privacy related functions (such as informing customers about personal information collected about them, changing/updating personal information, and applying "Opt-in/Opt-out" controls). For example, the client interface module 212, which is used to view, specify, and change consumer privacy preferences, is a privileged application. Appropriate security measures are undertaken to assure that the privileged applications are suitably identified as such and to prevent privileged view 262 access

"2. Apparatus according to claim 1, wherein data is accessed from a remote database." (Pg 36, Lines 17-18)

means, responsive to a change in individual data associated with said identified individual, for propagating said change to all of said plurality of communities in which said individual is a member.

Does not teach means, responsive to a change in individual data associated with said identified individual, for propagating said change to all of said plurality of communities in which said individual is a member.

by any entity that is not so authorized." (Col. 8, Lines 35-50)

"The privileged view 262 permits viewing, analysis, and alteration of all information. The privileged view 262 will be supplied only to privileged (Class "A" applications 110B, such as those required for administration and/or maintenance of the database (e.g. for inserting new customers, deleting ex-customers, handling address changes), and to those applications which handle privacy related functions (such as informing customers about personal information collected about them, changing/updating personal information, and applying "Opt-in/Opt-out" controls). For example, the client interface module 212, which is used to view, specify, and change consumer privacy preferences, is a privileged application. Appropriate security measures are undertaken to assure that the privileged applications are suitably identified as such and to prevent privileged view 262 access by any entity that is not so authorized." (Col. 8, Lines 35-50)

"For example, each opt-out (e.g. the eight opt-outs identified in section 4) could be applied separately to each category of personal data (e.g. demographic data; preference data), or down to each specific data item of personal data (e.g. age, gender; hiking interest, shoe brand preference). In this manner, customers could opt out of certain actions relating to certain interest areas, but could opt in to others (e.g. to receive direct mail marketing for running shoes." (Col. 10, Lines 9-16)

"The present invention also permits the expansion of the foregoing security preference paradigm to a system of multiple fine-grain preferences, based upon more detailed customer preferences. For example, direct marketing could be broken into separate privacy preferences for contact by telephone, direct mail, electronic mail, and a catchall for "other" action. Further, the scope of the direct marketing could be specified so as to permit only a single contact." (Col. 10, Lines 32-39)

XIV. Lack of Motivation or Suggestion to Combine References

In order to meet the first of the above-noted three requirements by the MPEP for prima facie obviousness, the following must be shown: 1.) one or more references, 2.) The references were available to the inventor at the time of the claimed invention, 3.) each of the references teaches an element of the claimed invention, 4.) the prior art contains a suggestion or a motivation to combine the references, 5.) the combination of the references would have made the invention obvious. See *In re Rinehart*, 189 USPQ 143, 147 (C. C. P. A. 1976); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir 1988); *In re Fitch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

Discussion of the deficiencies in these five factors in the Examiner's rejection:

With regards to the Conmy and Taylor patents and in reference to factors 1.)-3.), neither the cited Conmy patent nor the Taylor patent discloses an address book maintenance system that propagates changes to the address book entry data corresponding to an identified individual, as entered by a subscriber in their address book, to all other address book entries corresponding to the identified individual in the address books of other subscribers, where the subscriber is a member of the same community as the identified individual. Furthermore, neither the Conmy patent nor the Taylor patent discloses a means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including address data for each of said named individuals. Finally, neither the Conmy patent nor the Taylor patent discloses a means, responsive to a change in a set of said individual data associated with an identified individual, for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

With regards to the O'Flaherty patent and the Page reference and in reference to factors 1.)-3.), neither the O'Flaherty patent and the Page reference discloses a means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including address data for each of said named individuals; or a means, responsive to a change in a set of said individual data associated with an identified individual, for propagating said

change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

Thus, the Examiner provides no motivation or suggestion for combining the cited knowledge of the Conmy patent and the Taylor patent, and the O'Flaherty and the Page reference to render Appellant's claimed invention obvious. An essential evidentiary showing by the Examiner of a suggestion or motivation to combine the prior references relied upon in a manner that would render the claimed invention obvious has not been made. In re Rouffet, 47 U.S.P.Q. 2d 1453 (Fed. Cir. 1998); C.R. Bard, Inc. v M3 Systems, Inc. 48 U.S.P.Q. 2d 1225 (Fe. Cir. 1998).

The courts and the MPEP also state that to be available as prior art to an inventor, a reference must either be in the field of the inventor's endeavor or reasonably pertinent to the specific problem with which the inventor was involved. See 2141.01(a)

i. The courts have stated:

In resolving the question of obviousness under 35 U.S.C. 103 we do not presume full knowledge by the inventor of all the prior art in the field of endeavor, we only presume full knowledge by the inventor of all the prior art in the field of his endeavor. However, with regard to prior art outside of his endeavor, we only presume knowledge for those areas reasonably pertaining to the particular problem for which the inventor is involved. The rationale behind this rule precluding rejections based on combinations of teachings of references of nonanalogous arts is the realization that an inventor cannot possibly be aware of everything in the art. In re Wood, 220 USPQ 171, 174 (C.C.P.A. 1979) See also In re Oetiker, 24 USPQ2d 1443, 1445 (Fed. Cir 1992).

ii. A reference reasonably pertains to the problem solved by the inventor only if the reference teaches a solution to a problem faced by the inventor. The courts state a reference reasonably pertains to a problem if:

the matter with which it [the reference] deals, logically would have commended itself to the inventor's attention in considering his problem.... If a reference disclosure has the same purpose as a claimed invention, the invention relates to the same problem.... If directed to a different purpose, the inventor would accordingly have less motivation or occasion to consider it. In re Clay, 23 USPQ2d 1058, 1060-1061 (Fed. Cir. 1992).

iii. The Conmy system is a single flat file that contains n entries, one for each

user, including the user profile data. The Conmy patent fails to show or suggest a system that stores a plurality of user personal address books, each of which contains a plurality of entries input by the user, with each entry containing the identity of an individual as well as data associated with that individual, such as address data. In fact, the Conmy patent does not enable a user to generate their own personal address book, since there is a single common address list for all users. The Conmy patent also fails to show or suggest the coordinated management of the users' personal address books in the form of address updates, since there are no personal address books in the Conmy patent and this system is exclusively directed to the task of scheduling meetings and is exclusively a single layer system of n user profiles, all of which are stored in a single address list. Therefore, the propagation of changes, as claimed by Appellant, is impossible to implement in the Conmy system, since this is a single layer system, with the user profile changes impacting only a single entry in the single address list. The Taylor patent is a system for sending a message to users of electronic mail and facsimile transmissions and does not hint at the capabilities of Appellant's application.

The O'Flaherty patent discloses a privacy enhanced database that controls access to the consumer data stored therein via a dataview operation which has a privacy mask. The Page discloses an apparatus for accessing data from data storage devices, such devices may include different types of data storage devices and contain groups and subgroups of information. The apparatus disclosed in Page provides for accessing this information among these different types of data storage devices. Once a communication link is established to one of these data storage devices, instructions effect the transfer of data and the instructions comprise a name associated with a group or subgroup of data to be transferred. One bit flags are associated with individual data pieces to reflect its membership to a particular group. Again, Page does not hint at the capabilities of Appellant's application.

The prior art applied by the Examiner fails to contain a suggestion or a motivation to combine the references or render Appellant's claimed invention obvious.

With respect to MPEP Requirements 4.) and 5.) noted above, the courts and the MPEP have stated that a motivation to combine references must be found in the prior

art. See MPEP 2143.01

Obviousness cannot be established by combining teachings of the prior art to produce the claimed invention absent some teaching suggesting or incentive supporting the combination. In re Geiger, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)

The courts have further stated that the motivation or combination must be shown in the prior art.

In order to combine references, there must be some suggestion or motivation for doing so in the prior art either in the references themselves or elsewhere. In re Jones, 21 USPQ2d 1941, 1942 (Fed. Cir. 1992)

The courts have further stated:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification. In re Fritch, 23 USPQ2d 1780, 1783-1784 (Fed. Cir. 1992).

The Examiner states a belief that it would be obvious to combine the teachings of the four cited references, but fails to indicate any suggestion contained within the references themselves or elsewhere that would support this conclusion, and overlooks the specific teaching away from Appellant's claimed invention by Conmy and Taylor, and O'Flaherty and Page, as noted above. If any combination of Conmy and Taylor, and O'Flaherty and Page were proper (and it is not), it would not result in the Appellant's claimed invention. None of these references provides any suggestion or motivation to ability to offer a community membership data management system that identifies each user and their associate communities of interest, and all cited references together still don't contain all the elements of the claimed invention as pointed out previously.

XV. Summary

For the above cited reasons, the Examiner has failed to provide a prima facie showing of anticipation with respect to the structure claimed by Appellant in claims 1, 8, 15, 24 and the Appellant requests the 35 U.S.C. §102(e) rejection of claims 1, 8, 15 and 24 be removed. The remaining claims 2-3, 9-10, 16, and 25 are claims either dependent on claims 1 or 15, or dependent on analogous independent claims 8 and 24 and are allowable over the cited Conmy and Taylor references, and the O'Flaherty and Page

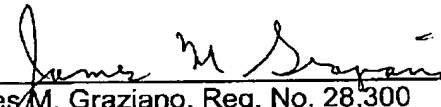
references for the same reasons as articulated above with respect to Appellant's claims 1 and 15. In addition, the Examiner has failed to provide a prima facie showing of obviousness with respect to the structure claimed by Appellant in claims 4-7, 11-14, 17-23 and 26-32, and the Examiner has practiced hindsight engineering to reject these claims based upon a combination of the references,

In summary, Appellant believes that claims 1-3 and 8-10 are allowable under 35 U.S.C. §102(e) and are not anticipated by U.S. Patent No. 6,101,480 issued to Conmy et al.; claims 4-7 and 11-14 are allowable under 35 U.S.C. §103(a) as being patentable over the Conmy patent and further in view of U.S. Patent No. 5,754,306 issued to Taylor et al.; claims 15-16 and 24-25 are allowable under 35 U.S.C. §102(e) and are not anticipated by U.S. Patent No. 6,253,203 issued to O'Flaherty et al.; and claims 17-23 and 26-32 are allowable under 35 U.S.C. §103(a) as being patentable over the O'Flaherty patent as applied to claim 15 and 24 above and further in view of WO 94/16398 applied for by Page. Appellant therefore respectfully requests a Notice of Allowance in this application in light of the amendments and arguments set forth herein. The undersigned attorney requests Examiner Srirama to telephone if a conversation could expedite prosecution. Appellant authorizes the Commissioner to charge any additionally required payment of fees to deposit account #50-1848.

Respectfully submitted,

Patton Boggs, LLP

Dated: 2 AUGUST 2004

By: 
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9.) **APPENDIX**

1. A data management system for automatically maintaining address information in a plurality of subscriber address books, comprising:

means for storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including at least address data for said named individuals; and

means, responsive to a change in data associated with an identified individual, for propagating said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

2. The data management system of claim 1 wherein said means for propagating comprises:

means for storing data to delimit which ones of said address books, which contain an entry corresponding to said identified individual, are authorized to receive said change to said individual data.

3. The data management system of claim 2 wherein said means for propagating further comprises:

means for defining groups of address books, which contain an entry corresponding to said identified individual, that are authorized to receive said change to said individual data.

4. The data management system of claim 1 wherein said individual address data is divided into a plurality of access levels, said means for propagating comprises:

means for storing access level data to delimit which ones of said individual data are authorized to receive said change to said individual data.

5. The data management system of claim 4 wherein said means for propagating further comprises:

means for defining groups of address books, which contain an entry corresponding to said identified individual, that are authorized to receive said change to said individual data.

6. The data management system of claim 1 further comprising:
means for retrieving data from a public database to verify a set of individual data associated with an identified individual.

7. The data management system of claim 6 further comprising:
means, responsive to said means for retrieving identifying a change in data in said individual data associated with an identified individual, for activating said means for propagating.

8. A method of operating a data management system for automatically maintaining address information in a plurality of subscriber address books, comprising the steps of:

storing a plurality of subscriber address books, each said address book comprising a plurality of entries, each entry corresponding to a named individual and including at least address data for said named individuals; and

propagating, in response to a change in data associated with an identified individual, said change to ones of said plurality of subscriber address books which contain an entry corresponding to said identified individual.

9. The method of operating a data management system of claim 8 wherein said step of propagating comprises:

storing data to delimit which ones of said address books, which contain an entry corresponding to said identified individual, are authorized to receive said change to said individual data.

10. The method of operating a data management system of claim 9 wherein said step of propagating further comprises:

defining groups of address books, which contain an entry corresponding to said identified individual, that are authorized to receive said change to said individual data.

11. The method of operating a data management system of claim 8 wherein said individual address data is divided into a plurality of access levels, said step of propagating comprises:

storing access level data to delimit which ones of said individual data are authorized to receive said change to said individual data.

12. The method of operating a data management system of claim 11 wherein said step of propagating further comprises:

defining groups of address books, which contain an entry corresponding to said identified individual, that are authorized to receive said change to said individual data.

13. The method of operating a data management system of claim 8 further comprising the step of:

retrieving data from a public database to verify a set of individual data associated with an identified individual.

14. The method of operating a data management system of claim 13 further comprising:

activating, in response to said step of retrieving identifying a change in data in said individual data associated with an identified individual, said step of propagating.

15. A data management system for automatically maintaining user data among a plurality of communities, each of which contains a plurality of members, comprising:

means for storing community membership data for a plurality of communities, each said community comprising a plurality of entries, each entry corresponding to a

named individual who is a member of said community and including a set of individual data for each of said individuals;

means for providing a user with access to a set of said individual data of an identified individual who is a member of a same community as said user; and

means, responsive to a change in individual data associated with said identified individual, for propagating said change to all of said plurality of communities in which said individual is a member.

17. The data management system of claim 15 further comprising:

means for defining a set of data sharing permissions, each of which define access by members of a community to a subset of the member's data; and

means for sharing said individual data among predetermined members of each community who are identified by said set of permissions.

18. The data management system of claim 15 further comprising:

means for retrieving data from a public database to verify a set of individual data associated with an identified individual.

19. The data management system of claim 18 further comprising:

means, responsive to said means for retrieving identifying a change in data in said set of individual data associated with an identified individual, for activating said means for propagating.

20. The data management system of claim 17 further comprising:

means, responsive to a set of individual data of an identified individual, for generating at least one gift giving selection for said identified individual.

21. The data management system of claim 20 further comprising:

means, responsive to a user approving at least one of said gift giving selection for said identified individual, for fulfilling said gift giving selection.

22. The data management system of claim 21 wherein said means for fulfilling comprises:

means for transmitting said gift giving selection to a third party vendor.

23. The data management system of claim 20 wherein said means for generating comprises:

means for retrieving gift giving selection data from a third party vendor;

means for displaying images illustrative of gift giving selections; and

means, responsive to a user approving at least one of said gift giving selections for said identified individual, for fulfilling said gift giving selection.

24. A method of operating a data management system for automatically maintaining user data among a plurality of communities, each of which contains a plurality of members, comprising the steps of:

storing community membership data for a plurality of communities, each said community comprising a plurality of entries, each entry corresponding to a named individual who is a member of said community and including a set of individual data for each of said individuals;

providing a user with access to a set of said individual data of an identified individual who is a member of a same community as said user; and

propagating, in response to a change in individual data associated with said identified individual, said change to all of said plurality of communities in which said individual is a member.

26. The method of operating a data management system of claim 24 further comprising the steps of:

defining a set of data sharing permissions, each of which define access by members of a community to a subset of the member's data; and

sharing said individual data among predetermined members of each community who are identified by said set of permissions.

27. The method of operating a data management system of claim 24 further comprising the step of:

retrieving data from a public database to verify a set of individual data associated with an identified individual.

28. The method of operating a data management system of claim 27 further comprising the step of:

activating, in response to said step of retrieving identifying a change in data in said set of individual data associated with an identified individual, for said step of propagating.

29. The method of operating a data management system of claim 26 further comprising the step of:

generating, in response to a set of individual data of an identified individual, at least one gift giving selection for said identified individual.

30. The method of operating a data management system of claim 29 further comprising the step of:

fulfilling, in response to a user approving at least one of said gift giving selections for said identified individual, said gift giving selection.

31. The method of operating a data management system of claim 30 wherein said step of fulfilling comprises:

transmitting said gift giving selection to a third party vendor.

32. The method of operating a data management system of claim 29 wherein said step of generating comprises:

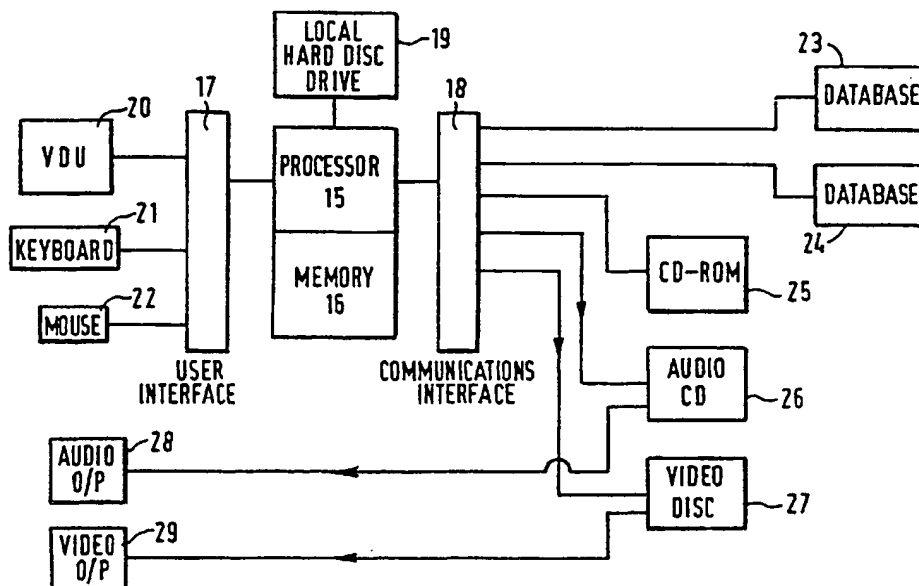
retrieving gift giving selection data from a third party vendor;
displaying images illustrative of gift giving selections; and
fulfilling, in response to a user approving at least one of said gift giving selections
for said identified individual, said gift giving selection.



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵ : G06F 15/403	A1	(11) International Publication Number: WO 94/16398 (43) International Publication Date: 21 July 1994 (21.07.94)
(21) International Application Number: PCT/GB93/00109 (22) International Filing Date: 18 January 1993 (18.01.93) (71)(72) Applicant and Inventor: PAGE, Christopher, Robert [GB/GB]; 65 Napton Drive, Leamington Spa, Warwickshire CV32 7UX (GB). (74) Agents: BERESFORD, Keith, Denis, Lewis et al.; Beresford & Co., 2-5 Warwick Court, High Holborn, London WC1R 5DJ (GB).		(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG). Published With international search report.

(54) Title: ACCESSING DATA



(57) Abstract

A system for accessing data is disclosed which has a communications interface (18) for communicating with data storage devices, such as external databases (23, 24) and optical discs (25, 26, 27) etc. Each data item has associated therewith a set of commands (45) for effecting the transfer of data. In addition, each item also has a number of attributes (41) identifying membership of the item to particular groups. The groups allow data to be obtained for all items which are within the group. Furthermore, the system is capable of providing logical processing of the attributes in order to define new groups. Thus, an AND operation, an OR operation, and exclusive OR operation or a subtraction may be performed upon groups so as to define new groups.

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ACCESSING DATA

FIELD OF THE INVENTION

The present invention relates to accessing data from data storage devices. The storage devices may include remote databases and the data may represent text, sound (speech or music) still images or video sequences.

BACKGROUND OF THE INVENTION

In known systems, access may be given to blocks of data each relating to a particular item. For example, blocks of data may be available for particular chemicals, particular modes of transport, particular buildings, particular computer peripherals etc., from which comparisons may be made of particular attributes, such as solubility in alcohol, miles per gallon, accessibility, ability to print in color etc. Thus, hundreds of items may be accessible for a particular topic, with, for example, tens of attributes being applicable to each item.

Looking at one of these topics, say, relating to chemicals, a user may be interested in solubility. Thus, all of the available data may be considered, referred to herein as the topic universe, to produce a list of all chemicals which are soluble in alcohol.

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Subsequently, the universe of data may be considered again to provide a list of chemicals which are soluble in benzene. At a later stage, further information may be required from the universe concerning all
5 chemicals which are soluble in both alcohol and benzene. Such an enquiry would require a list to be produced manually, derived from the previously obtained lists, and then instructions would be generated to request further data relating to the
10 selected items.

Recently, there has been a trend towards providing access to many different types of data storing media. Thus, in addition to conventional databases, data may be supplied from local CD ROMS, audio discs and video
15 discs. In conventional systems, problems exist in optimising access to these data sources and a significant amount of manual effort is necessary if access to a plurality of source is required.

An object of the present invention is to improve
20 data access optimisation, particularly when related items are being considered from a particular topic and access to a plurality of sources is required.

SUMMARY OF THE INVENTION

According to a first aspect of the present

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invention, there is provided apparatus for accessing data, comprising means for establishing a communication link to data storage means, characterised by: means for storing a set of instructions to effect the transfer to data, wherein each set of instructions has a name associated therewith and separately defined attributes identifying membership of the item to particular groups, and means for performing operations on said attributes.

In a preferred embodiment, the sets of commands are contained within respective item data units, wherein each item within a topic has a respective item data unit. Preferably, said attributes are one-bit flags, each representing membership to a particular group, when set. Some groups may be sub-groups of other groups and means are included for recording group hierarchy.

The means for performing operations upon attributes may be arranged to set attributes in response to data received from the storage means. Alternatively, the means for performing operations may be arranged to set attributes in response to local instructions from an operator. Thus, a group may be

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formed of items having a particular attribute which is selected by the operator, this attribute possibly not being known to anyone else. Thus, in the chemical example, an operator may set an attribute for particular items identifying the fact that the item chemical is available from a particular source. Furthermore, in a preferred embodiment, the means for performing operations upon the attributes is arranged to define new groups from Boolean logical combinations of existing groups.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 is a schematic representation of a data access system and a plurality of data sources;

Figure 2 shows a physical representation of the data accessing system identified in Figure 1, including a processor with associated memory, arranged to perform logical operations in response to instructions read from said memory;

Figure 3 represents the organisation of topic-specific data stored in the memory of the system shown in Figure 2, including attribute flags;

Figure 4 details the attribute flags identified in Figure 3, when used for a specific topic;

Figure 5 details the operation of the system shown

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in Figure 1, identifying the logical combination of groups;

Figure 6 details the operation of the system identified in Figure 5; and

5 Figures 7 to 10 detail specific logical operations performed upon attribute flags.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A schematic functional representation of a data communication and processing system is shown in Figure
10 1, having a processor 15 with associated local memory 16, a user interface 17 and a communications interface 18. In addition, a local hard disc drive 19 is arranged to transfer data to and receive data from the memory 16.

15 The processor 15 includes an arithmetic logic unit, registers and an instruction counter. The memory 16 receives instructions from the hard disc unit 19, which are in turn read to control the operation of the processor 15. In addition, the
20 memory device 16 also includes areas arranged to store data relating to a specific topic.

The instruction counter of the processor 15 is arranged to issue sequential addresses to the random access memory device, each resulting in the return of

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an instruction to the processing unit. Instructions returned to the processing unit cause said unit to perform arithmetic operations and data transfers. Data is temporarily stored in registers, whereafter it
5 may be written back to the memory device, transmitted to the user interface 17, written to the hard disc unit 19 or supplied to the communications interface 18.

Initially, upon start-up, the instruction counter
10 is arranged to point at instructions within the memory 16 which control the operation of the system. These instructions relate to internal data transmission, that is, data transmission between the user interface 17, the processor 15, the memory 16 and the hard disc
15 19. Thus, the combination of these devices with the list of operating instructions from the memory device 19, provides an internal operating environment, allowing an operator to effect data transfers between these devices in response to operations supplied via
20 the user interface 17.

The user interface 17 is connected to a visual display unit (VDU) 20, a keyboard 21 and a mouse 22 or similar devices for displaying data from the processor 15 and for supplying data to the processor 15.

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In this example, the communications interface allows connections to be made to a first remote data base 23, a second remote data base 24, a CD ROM 25, an audio compact disc player 26 and a video disc player 27. Devices 25, 26 and 27 may be accessible to a user, allowing the user to load and replace encoded discs. Databases 23 and 24 may be remote, database 23 may be in the country of operation and database 24 may be an international database, requiring an international telecommunications link to be established. Outputs from alpha-numeric databases are returned to the communications interface 18. Audio signals from CD26 and video signals from player 27 are supplied to respective audio and video output devices 28, 29.

A physical implementation of the processor and user devices is shown in Figure 2, in which processor 15, memory 16, disc drive 19 and interfaces 17 and 18 are mounted within a main housing 31. In the preferred embodiment, the random access memory device provides four megabytes of storage capacity and the processing unit 18 is capable of receiving instructions from the memory at a rate of 4,000,000 instructions per second. The processor 15 is preferably in

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integrated form, an example being the Acorn ARM chip, preferably working within a multi-tasking operating environment, such as that provided by the operating system RISCOS 3.

5 The communications interface 18 allows communication to be made to the external devices (23 thru 27) which do not come under the direct control of the processor's operating system. External devices of this type, which may be remote databases etc, operate
10 under the control of their own respective systems and protocols must be established to facilitate communication between the different environments.

 For example, data may be read from an optical disc system, which may record sampled audio signals or,
15 alternatively, alpha numeric data. The operating systems for such devices are complex; motors must be switched on to rotate discs, additional tracking motors must position laser devices and optics, while accurate positioning of the optical devices must be
20 maintained to facilitate data transmission. Thus, the instructions generated to effect data transfered from remote devices, such as a laser disc unit, differ from the sort of operations performed to obtain data from the local hard disc unit 20. Specifically, to

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effect internal transfers of data, the necessary low-level instructions will be embedded within the environment of the operating system. However, when requesting data from an external device, insufficient information will be available within the operating system for the transfer to be made. Additional information must be included, which specifically relates to the selected device with which data communication is to take place. Thus, in order to effect data transfer from an external device, it is conventional practice to issue commands via the user interface 17, identifying specific input/output ports and specifying instructions relevant to the type of device under consideration, along with the information identifying the location of the information required. Furthermore, physical reconnection of the system may be required, such as, for example, selecting an appropriate modem or selecting operation conditions for a modem.

20 In the present embodiment, all data transfers are made in response to the selection of an item or group of items within a particular topic. Thus, topics may relate to chemicals, particular modes of transport, particular buildings, or particular computer

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peripherals, as previously described. Topic data is stored as a file or as a plurality of related files on the hard disc drive unit 19 and work within a particular topic is effected by transferring this data to the memory 16.

Topics consist of a plurality of items which are relevant to that particular topic. Thus, if the topic under consideration relates to chemicals, each item may, for example, be a particular chemical and data may be available, from data sources 23 thru 27, relating to properties of the chemical, applications of the chemical and/or availability of the chemical, etc. In another example, a topic may relate to modes of transport in which each item is a particular mode of transport, such as cars, buses, ferries and animal propelled transportation modes etc. Thus, in addition to providing access to databases and enabling the manipulation of attributes, the system also facilitates training and educational applications.

Data is stored in the memory 16 relating to each item, referred to herein as an item data unit. Two item data units 35 and 36 are shown in Figure 3 and many units of this type may be created; typically, hundreds of such units may be available. In addition

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to item data units, memory allocations are also provided for a sub-group list 37, external access sub-routines 38 and a buffer 39 for the temporary storage of data from external sources.

5 Each item data unit includes a name 40, attribute flags 41, data defining an item graphic 42, internal data 43, a summary of externally available data 44 and instructions for accessing the external data 45.

10 The data identifying the name allows a name to be given to the item which represents the nature of the item. Thus, in the chemical example, the name identifies a particular chemical under consideration or, alternatively, in the transport example, the name may identify a particular form of transport. The
15 attribute flags 41 are set by a user and allow the user to place items in, or identify items as belonging to, particular groups. Thus, for example, in the chemical example, a group may exist identifying whether a chemical is soluble in alcohol and within
20 each item data unit a flag will be present within the attribute flags area 41, stating whether or not the item is soluble in alcohol. Any number of groups of this type may be present and suitable memory allocation is provided within the attribute flags

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area.

In the preferred embodiment, each item is displayed with, in addition to its name, a graphical representation of the item itself. This data is stored as graphics data, defining color and intensity values of pixels, within the item graphic area 42. Thus, the system may include a scanning device, allowing graphics information to be supplied to the processor 15 over the user interface 17. Alternatively, graphics information may be loaded to the system from an external source. In the transport example, in which items consist of cars, boats and planes etc, graphical representations of these forms of transport may be stored in the item graphic area 42. Furthermore, displayed graphics may be highlighted or modified in some other way, to identify membership of a particular selected group.

Area 43 contains internal data relating to the item itself. This internal data is usually created by the operator and may have been obtained from external data sources. Thus, as operation continues, data may be added to the internal data area, thereby increasing the amount of data available locally, thereby improving the accessability of said data without

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requiring additional access to external sources.

Data may be available for each item from a plurality of sources and may take many forms. Data area 44, within the data unit, provides a summary of the nature of the external data available. Thus, the data contained within area 44 would identify databases and local sources which have information relating to the item under consideration. As new data sources become available, the data contained in the summary of external data may be updated by the operator.

In order to actually access the external data, instructions are provided within area 45 for effecting the transfer of data from the remote sources. Thus, once a mechanism for receiving data from a particular source relating to a particular item has been established, this data is recorded in area 45 for future reference. Thus, where data is being updated on a regular basis, search strategies may be established, whereafter the external data is quickly and automatically accessible, with reference to the instructions contained in area 45.

It will be appreciated that many instructions contained within area 45 will be repeated as access is made to particular databases for a plurality of items.

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In order to conserve memory allocation, area 38 provides storage for external access sub-routines, which are in turn called from instructions provided within area 45. Thus, the sub-routines contained
5 within area 38 may include dial-up codes for external databases or access codes for particular areas of storage contained on particular storage devices.

Many groups may in turn be sub-groups of larger groups. For example, groups may be provided
10 identifying solubility in particular solvents, which in turn may all be sub-groups of a group which identifies solubility in something. Further operation of the system will be described with reference to a particular example, concerning the topic of transport,
15 implemented primarily for educational purposes.

In this example, the number of items has been restricted to petrol car, diesel car, donkey, camel, yacht, balloon, windsurfer, bus and ferry. Attribute flags are provided for the following groups:
20 air, land, water, wind, animal, chemical, petrol, diesel. The group "chemical" refers to the type of fuel used for the form of transportation, therefore the groups for petrol and diesel are sub-groups of the chemical group. Other sub-groups may be included

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which have numerical values. For example, a group may exist for "having wheels" with sub-groups for "two wheels", "three wheels" and "four wheels" etc.

5 In the example topic, concerning transportation, nine item data units have been created, one for each of the nine items under consideration. Each item data unit includes a name, such as petrol car and eight settable attribute flags. Item graphic data has been supplied to respective areas 42, such that, on loading
10 the topic data, a suitable graphic is displayed for each of the items. In addition, for each item, in this example, some internal data has been included, providing a brief description of the item along with some of its characteristics. Data is also included in
15 areas 44 relating to a summary of the external data such that, for example, external data-bases may be accessed for the petrol car item, relating to specific types of car and road tests etc. In another example, video displays are available from the video disc unit
20 27 for the animal forms of transport, showing these animals performing their transportation duties. Similarly, a number of audio tracks are available from the audio CD 26 which relate to operating ferries, including interviews with sailors and

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sailing songs. Thus, it will be appreciated that many permutations are available, allowing many different types of data to be supplied relating to a particular item.

5 Instructions for accessing the external data have been loaded to respective areas 45 such that, on selecting an external data source in response to prompts from the summary data provided at area 44, the external data can actually be assessed allowing, for
10 example, a video display to be generated showing camels carrying people across a desert.

 Attribute flags and a sub-group table for the transportation topic previously disclosed, are shown in Figure 4. As shown, each item includes eight
15 attribute flags, one relating to air, one to land, one to water, one to wind, one to animal, one to chemical, one to petrol and one to diesel. These groups are created by an operator, as groups which are of interest to the operator in terms of accessing data.
20 Once the items and groups have been selected, it is necessary for an operator to specify which items are members of which particular groups. In the tables shown in Figure 4, a star identifies the presence of an item within a particular group. Thus, considering

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the first item, a petrol car, attribute flags for land and for petrol are set. Similarly, for the diesel car, attribute flags for land and for diesel are set.

For the donkey, attribute flags for land and for
5 animal are set and the same flags are set for the camel. For the yacht, attribute flags for water and wind are set, while the ballon attribute flags set are wind and air. For windsurfing, attribute flags for water and wind are set, while for the bus, attribute
10 flags for land and diesel are set. For the ferry, attribute flags for water and diesel are set.

The sub-group table is created when groups are created, during which a group may be identified as being a sub-group of a previously defined group. Thus,
15 the groups are listed vertically with an identification of "having sub-groups" listed horizontally. Flags within this table are set for each diagonal correlation, that is to say, the system is configured such that each entry is considered to
20 have the sub-group of itself. In addition, other sub-groups may be present and in this example, as previously stated, the group chemical has sub-groups petrol and diesel in addition to itself.

An overview of the operation of the processing

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system shown in Figure 1 is presented in Figure 5. The hard disc drive 19 may contain information relating to a plurality of different topics therefore, upon initiation, at step 51, a list of all available topics are displayed from which an operator may select one of these topics for further consideration. Topic selection is made at step 52 and at step 53 the topic data is loaded into the memory 16 from the local hard disc drive 19. In some implementations, the system may be purpose built to operate with only one specific topic, in which case the initiation procedures, possibly in the form of an automatically executable batch file, result in the topic data automatically being loaded into memory, with control then proceeding to step 54. At step 54 the universe of available items within the topic are displayed, preferably in the form of icons or sprites derived from the item graphic data 42 of each item data unit.

At step 55 a user is presented with an option to create new groups, such as the groups identified in Figure 4. Thereafter, at step 56, an operator is presented with an opportunity to place items in groups. Thus, a particular group may be selected and items may be added to this group by directing a cursor

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over the item's respective graphic and implementing an instruction so as to cause the representation of the graphic to be modified in some way. Thus, the instruction may involve the "clicking" of a button on the mouse 22 and the modification to the graphic data may consist of the data being highlighted in some way. Thus, during further operation, membership of a particular group will be displayed on the VDU 20 by the respective graphic being highlighted.

At step 57 new groups are effectively defined by logically combining existing groups. Thus, a new group may be formed by a logical AND, a logical OR, a logical exclusive OR, or a subtraction, as detailed subsequently.

The ability to logically combine groups allows selection to be made as to the particular nature of data required from external sources, before that data is actually accessed. At step 58, once the group of interest has been created and selected, external data is accessed for each item within the selected group, using the instructions for accessing external data at locations 45 and the external-access-sub-routines at area 38, as required.

At step 59 an opportunity is given to modify

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groups and items, particularly in response to the data that has been accessed at step 58. Thus, in response to the data access at step 58, groups may be modified and new groups defined. For example, in response to data received from external sources, it may become apparent that an item should not have been included in the group or, alternatively, it may become apparent that further investigations should be made with regard to items which were previously excluded from the group.

Information received from external sources is automatically transferred to the buffer area 39 of memory 16. The data loaded to the buffer area 39 may also be stored permanently on the hard disc 19. Thus, the data received from external sources, when in alpha-numeric form, may be evaluated either automatically or by the user, allowing modifications to be made to item data units. For example, in response to data received from external sources, data may be added to the internal data areas 43, thereby increasing the amount of data stored locally in a logical format, which in turn may reduce the number of occasions when data is required to be read from the external sources, it being noted that many external

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databases charge users on the basis of the amount of data supplied or connection time to the database. Furthermore, data received from external databases may also be used to modify areas 44, giving a summary of the nature of the data available from these sources. Furthermore, in addition to attribute flags being set by a user, they may also be set automatically in response to information received from external sources. Thus, an attribute flag may remove the necessity to make further investigations to the data base, by identifying data retrieved from the data base. Alternatively, the flags may be set to define user related groups, possibly, on information which is not available from the data base. Once groups have been defined in these ways, new groups may also be produced by performing Boolean logical operations upon the groups.

After groups or items have been modified as required at step 59, control may be returned to step 54, displaying the universally available items. Alternatively, modified data may be stored on the hard disc 19 and control returned to step 51, displaying all of the available topics.

Procedures for the logical combination of groups,

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identified at step 57 of Figure 5, are detailed in Figure 6. At step 61 the universe of items is displayed, in a similar fashion to the display of items at step 54. At step 62 a group (created at step 55 of Figure 5 and having items placed therein at step 56 of Figure 5) is selected and at step 63 the selected group is identified in the display of items.

Group selection is identified within the display of items by highlighting the graphic representation of items which are present within that group. At step 64 a question is asked as to whether the operator wishes to make a new universe from the highlighted selected group. If this question is answered in the affirmative, step 65 deletes all of the non-highlighted items, that is to say, the items which are not present within the group, while retaining the highlighted items. Furthermore, given that items outside the group have been deleted, the highlight is removed, thereby presenting a modified universe of items. It should be noted, however, that the original total universe is retained in memory and may be recalled later in response to operator instructions control then returns to step 61.

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At step 66, after the question raised at step 64 has been answered in the negative, a logical operator is selected which performs an operation between the highlighted (usually the previously searched) group and a new group to be selected. At step 67 a new group is selected. Thus, the first selected group is identified in Figure 6 as A, or, alternatively, a group may be selected on the basis of all the items which are not within a particular group, identified as \bar{A} (A bar). Similarly, the second group is identified as group B which may be a true group, identified as B, or a group derived from all of the items outside a group B, again identified as \bar{B} (B bar).

At step 68, the operation of A with B is performed and the result is displayed, by modifying the highlighting of items, at step 69. At step 70, a question is raised as to whether the user wishes to make a new universe, thereby deleting the non-highlighted items which are not present in the new group. If this question is answered in the affirmative, control is returned to step 65. Alternatively, at step 71 a question is raised as to

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whether another operation is to be performed and upon answering this question in the affirmative, control is returned to step 66, allowing a further operator to be selected and the procedure repeated with the newly
5 formed group becoming group A and another selected group becoming group B.

Upon answering the question raised at step 71 in the negative, a question is raised at step 72 as to whether a new group is to be formed. Thus, the
10 logical operations performed on existing groups may be used to define a new group, which will itself have an attribute flag in each of the item data units. If the question raised at step 72 is answered in the affirmative, the new group is formed at step 73,
15 whereafter control is returned to step 61, displaying the universe of items. The particular operations performed at step 65 through 68 will depend upon the particular operator selected.

As shown in Figure 6 as step 65, the preferred
20 embodiment provides four types of logical operations to be performed, namely logical OR (union), logical AND (intersection), logical exclusive OR (not intersection) and subtraction. When subtraction is selected, the result consists of the members of a

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first set with the members of a second set, which are also present in the first set, subtracted therefrom.

The procedures implemented for the union of sets, providing a logical ANDing of groups, is detailed in Figure 7. Step 75 is effectively a summary of previously implemented steps in Figure 6, resulting in the selection of a first group A, the selection of the union operator and the selection of a second group B. The effect of the union operator is shown by Venn diagram 76, in which the union of sets A and B results in a new group containing all the items which were present in either group A or group B. Thus, all items of the universe have a logical position within one of the regions of the Venn diagram 76. Items which are in both groups A and B will be positioned within the intersecting region 77, showing that they belong to both set A and set B. Items in group A but not in group B would be placed within region 78 and, similarly, items in group B and not in group A would be placed within region 79. All remaining items, not being in group A or group B would be placed in the universal region 80, outside the boundaries of set A and set B.

Step 61 of Figure 6 will have displayed the

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universe of items and step 62 will have provided for a first group A to be selected. This selected group is then identified on the display by means of highlights, that is to say, the graphical representation of the item is highlighted, its luminance value being modified compared to that of the remaining items displayed on the screen.

Thus, at step 75 in Figure 7, group A has been selected and this selection will be identified to the user by means of highlights being applied to the items within that group. The union operator has been selected, group B has been selected and the subsequent processing shown in Figure 7 will modify the highlighting of the items, such that, highlighting will change from showing just group A to showing the union of group A with group B.

During the processing identified in Figure 7, all items are considered sequentially, thus, at step 81, the next item on the list of items is considered.

At step 82 a question is raised as to whether the item is in group A. If the item is in group A, the highlight flag for that particular item will have already been set, at step 63, and no further action is required. If the item is not in group A a question

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is asked at step 83 as to whether the item is in group B. If this question is answered in the affirmative, the item's logical position within the Venn diagram 76 is within region 78, given that it is within group B but not within group A. Consequently, at step 84, the highlight flag is set and the processing continues. At step 85 a question is asked as to whether the item considered was the last item and when this question is answered in the negative, control is returned to step 81 where the next item is considered.

If the question raised at step 82 is answered in the affirmative, to the effect that the item is in group A, or if the question raised at step 83 is answered in the negative, to the effect that the item is not in group B, control is passed directly to step 85, thereby bypassing the setting of a flag at step 84.

When all items of the system's universe have been considered, all items which would have logically been positioned within region 79 of the Venn diagram will have had their highlight flags set, thus, the overall picture of highlights will represent the logical ORing of the groups, equivalent to the set operation of a

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union of set A with set B. Subsequently, the question raised at step 85 will be answered in the affirmative, to the effect that all items have been considered and control will be returned to step 68 of Figure 6.

5 Referring to the particular example given in Figure 4, the union operator shown in Figure 7 may, for example, be used to form a new group which contains items relating to transportation over land or over water, thereby excluding transportation by air.
10 The land group could be selected as group A which, at step 75, would result in the highlight flag being set for petrol car, diesel car, donkey, camel and bus. The water group would then be selected as group B and the question raised at step 83 would result in the
15 highlight flag being set for yacht, windsurfer and ferry.

 The operations performed for the logical ANDing of groups, equivalent to the set operation of intersection, is detailed in Figure 8. The Venn
20 diagram shown in Figure 7 is repeated in Figure 8, with the same numerals being used to identify equivalent regions of the diagram. The region of interest for the intersection operation is region 77, that is to say, items which are in both group A and

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group B, equivalent to a logical AND operation.

Step 91 is equivalent to step 75 in Figure 7, in that, group A is selected as the first group, resulting in the items in that group having their highlight flag set. On this occasion, however, the intersection operator is selected, whereafter group B is selected.

At step 92 the next item in the list of items is considered and at step 93 a question is raised as to whether the item is in group A. If the item is not in group A the highlight flag for the item will not have been set and no further action is required. If the question raised at step 93 is answered in the affirmative, confirming that the item is in group A, a further question is raised at step 94 as to whether the item is in group B. If the item is in group A and in group B, its highlight flag will have already been set and no further action is required. However, if the question raised at step 94 is answered in the negative, confirming that the item is not in group B but only in group A, the item belongs to region 78 of the Venn diagram and, therefore, at step 95 its highlight flag is reset, given that the item does not fall within the new group defined by the intersection

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of sets A and B.

At step 96 a question is raised as to whether the last item has been considered and if this question is answered in the negative, control is returned to step 92, where in the next item in the list is considered. If the question raised at step 93 is answered in the negative or if the question raised at step 94 is answered in the affirmative, control is supplied directly to step 96, thereby bypassing the flag resetting operation at step 95. After considering the last item of the list, the question raised at step 96 is answered in the affirmative and control is returned to step 68 of Figure 6.

Referring to the specific example given in Figure 4, the intersection operation may be used, for example, to produce a new group of items which involves transportation over water using wind power. Thus, the water group may be selected as group A, resulting in the highlight flag for the yacht, windsurfer and ferry being set. Subsequently, the question raised at step 93 will be answered in the affirmative for the ferry and the question raised at step 94 for this item will be answered in the negative, given that the attribute flag for wind is

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not set for this particular item. Thus, the highlight flag for ferry will be reset at step 95, resulting in a new group which includes only the yacht and the windsurfer.

5 The not intersection operations are detailed in Figure 9 and again the Venn diagram 76 is shown. As shown in Figure 8, intersection relates to region 77 of the Venn diagram therefore, not intersection relates to the regions within set A and set B,
10 excluding the intersection of these two sets. Thus, the new set includes region 78 and region 79, but excludes region 77.

 At step 101, group A has been selected and highlighted, the operator "not intersection" has been
15 selected and group B has been selected. At step 102 the next item is considered and the question is raised at step 103 as to whether the item is in group A. If the question raised at step 103 is answered in the affirmative, it is possible that the item would be
20 positioned within region 77 or region 78. If the item is within region 78, no further action is required because the highlight flag is required to be set. However, if the item would be positioned within region 77, the highlight flag needs to be re-set. Thus, a

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question is raised at step 104 as to whether the item is in group B. If this question is answered in the affirmative, the item would exist within region 77 and the highlight flag is reset at step 105. No action is required if the question raised at step 104 is answered in the negative.

If the question raised at step 103 is answered in the negative, the item is not in group A, therefore it may fall within region 79 or within region 80. If the item is within region 79, its highlight flag will not have been set and it will need to be set. Thus, a question is raised at step 106 as to whether the item is in group B. If this question is answered in the affirmative, the item belongs to region 79, therefore, its highlight flag is set at step 107. If the question raised at step 106 is answered in the negative, the item would exist in region 80 and no further action is required.

A question is raised at step 108 as to whether the item is the last item in the list and when this question is answered in the negative, the next item is considered at step 102. Eventually, the question raised at step 108 will be answered in the affirmative and control will be returned to step 68 at step 109.

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The procedures for the "subtract" operator are detailed in Figure 10 and, again, the Venn diagram 76 is shown in the Figure, identifying the region of interest as region 78, that is to say, the region consisting of the region representing set A with the region 77, representing the intersection of set A with set B, removed therefrom.

At step 111, group A has been selected and the highlight flag for items in this group set. In addition, the "subtract" operator has been selected and group B has been selected.

At step 112 the next item is considered and a question is raised at step 113 as to whether the item is in group A. If the item is not in group A it would be placed within region 79 or region 80 of the Venn diagram 76 and no further action is required. If the question raised at step 113 is answered in the affirmative, a question is raised at step 114 as to whether the item is in group B. If this question is answered in the affirmative, the item is in both group A and group B and belongs to region 77 of the Venn diagram. Being in group A, its highlight flag will have been set and given that it is also within group B it is necessary to re-set the highlight flag. Thus, if

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the question raised at step 114 is answered in the affirmative, the highlight flag is reset at step 115.

5 A question is raised at step 116 as to whether the item is the last item in the list and if this question is answered in the negative, control is returned to step 112. If the question raised at step 113 is answered in the negative or if the question raised at step 114 is answered in the negative, control is
10 directed towards step 116 and the re-setting operation at step 115 is ignored.

Eventually, all items will have been considered and the question raised at step 116 will be answered in the affirmative, resulting in control being
15 returned to step 68, at step 117.

It will be appreciated that every item includes, within its item data unit, the necessary information for accessing data relating to that item. By including a region for internal data and a summary of
20 external data, information derived from external sources may be placed within logical regions, thereby facilitating the easy retrieval of said information. By including space for defining graphical information, the item may be identified by its graphical icon,

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faciliatating manipulation within a graphics environment, such as that provided by GEM or windows etc.

5 The system is enhanced greatly by the provision of attribute flags, defining membership of items within particular groups or sets. Furthermore, logical manipulation of the attribute flags allows new groups to be defined and these groups may in turn be used to access external data relating to the items within the group. Thus, significant improvements to data
10 organisation and collation may be effected before an enquiry is made to external data sources, thereby optimising access time to said sources.

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CLAIMS

1. Apparatus for accessing data, comprising
means (15, 18) for establishing a communication link
5 to data storage means; characterised by
means (45) for locally storing sets of instructions to
effect the transfer of data from said storage means,
wherein
each set of instructions has a name (40)
10 associated therewith and
separately defined attributes (41) identifying
membership of the item to particular groups,
further comprising
means (15) for performing operations on said
15 attributes.
2. Apparatus according to claim 1, wherein data
is accessed from a remote database.
- 20 3. Apparatus according to claim 2, including a
modem for accessing data from the database over a
public switched network.

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4. Apparatus according to claim 2, wherein said stored instructions are arranged to call-up a database and to effect the transfer of data therefrom.

5 5. Apparatus according to claim 1, wherein data is accessed from an optical disc by means of an optical disc player (25, 26, 27).

10 6. Apparatus according to claim 5, wherein the optical disc player is local and the apparatus generates prompts identifying particular discs to be loaded.

15 7. Apparatus according to claim 5 or claim 6, wherein the optical disc player is arranged to supply alpha-numeric data to a central processor (15).

20 8. Apparatus according to claim 5 or claim 6, wherein the optical disc player is arranged to generate audio signals or video signals which are relayed to reproduction equipment (28, 29).

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9. Apparatus according to claim 1, wherein said sets of instructions are contained within respective item data units (35), wherein each item within a topic has a respective item data unit.

5

10. Apparatus according to claim 9, wherein said attributes (41) are stored within their respective item data unit.

10

11. Apparatus according to claim 1, wherein said attributes (41) are one-bit flags, each representing membership to a particular group.

15

12. Apparatus according to claim 1, wherein some groups are sub-groups of other groups, said apparatus including means (15, 16, Figure 4) for recording group hierarchy.

20

13. Apparatus according to claim 1, wherein said means for performing operations on the attributes is arranged to set said attributes in response to data received from the data storage means.

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14. Apparatus according to claim 1, wherein said means for performing operations on the attributes is arranged to set said attributes in response to local instructions from an operator.

5

15. Apparatus according to claim 1, wherein said means (15, 67) for performing operations upon said attributes is arranged to define new groups from logical combinations of existing groups.

10

16. Apparatus according to claim 15, including means (15, Figure 7) for producing a new group by performing a logical OR operation on existing groups.

15

17. Apparatus according to claim 15, including means (15, Figure 8) for producing a new group by performing a logical AND operation on existing groups.

20

18. Apparatus according to claim 15, including means (15, Figure) for producing a new group by performing a logical exclusive OR on existing groups.

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19. Apparatus according to claim 15, including means (15 Figure 10) for producing a new group by subtracting the items in a group from another group.

5 20. Apparatus according to claim 9, wherein each item data unit (35) includes data (42) defining a graphical representation of the item.

10 21. Apparatus according to claim 20, wherein available items are identified by displaying the graphical representation of the item.

15 22. Apparatus according to claim 21, wherein membership of a group is identified by modifying the nature of the graphical representation of the item.

20 23. A method of accessing data, characterised by the steps of performing operations upon data items to generate a group of items for which data access is required.

24. A method according to claim 23, wherein each data item includes attributes and the operations are performed on these attributes.

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25. A method according to claim 24, wherein operations are performed on attributes in response to accessed data.

5 26. A method according to claim 24, wherein operations are performed on said attributes in response to local selections made by an operator.

10 27. A method according to claim 23, wherein each data item includes a set of instructions for effecting data transfer.

15 28. A method according to claim 27, wherein said data transfer is effected from remote sources in response to said instructions.

20 29. A method according to claim 24, wherein said attributes are one-bit flags, each representing membership to a particular group.

30. A method according to claim 23, wherein groups are generated from logical operations performed on previously defined groups.

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31. A method according to claim 30, wherein a new group is defined by performing an AND operation, an OR operation, an exclusive OR operation or a subtractive operation upon existing groups.

5

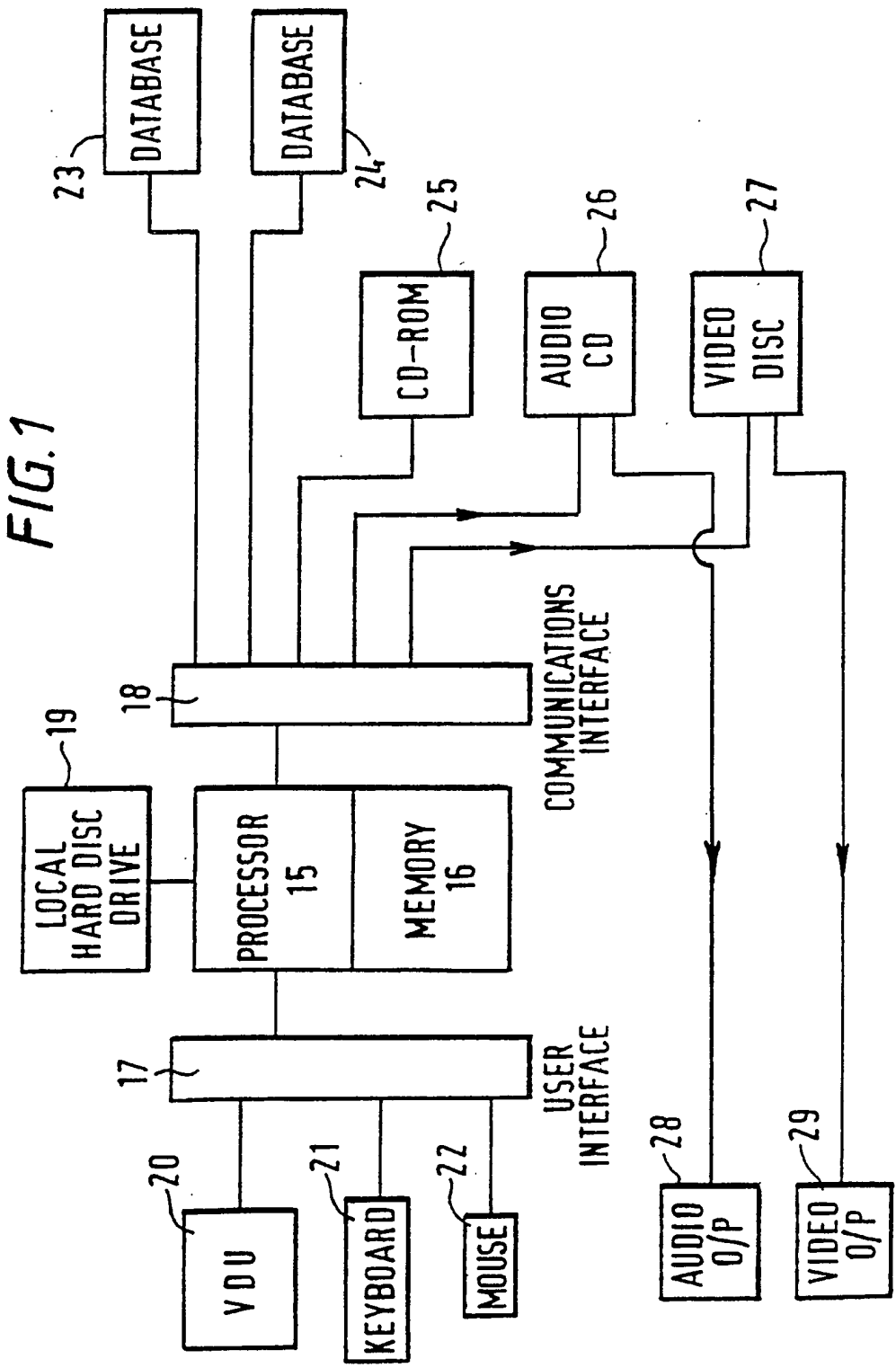
32. A method according to claim 23, wherein items are represented as graphical representations, in response to graphic information stored for each item.

10

33. A method according to claim 32, wherein membership of a group is identified by modifying the nature of the graphical representation.

15

34. A method according to claim 33, wherein graphical representations are highlighted in response to respective highlight flags being set.



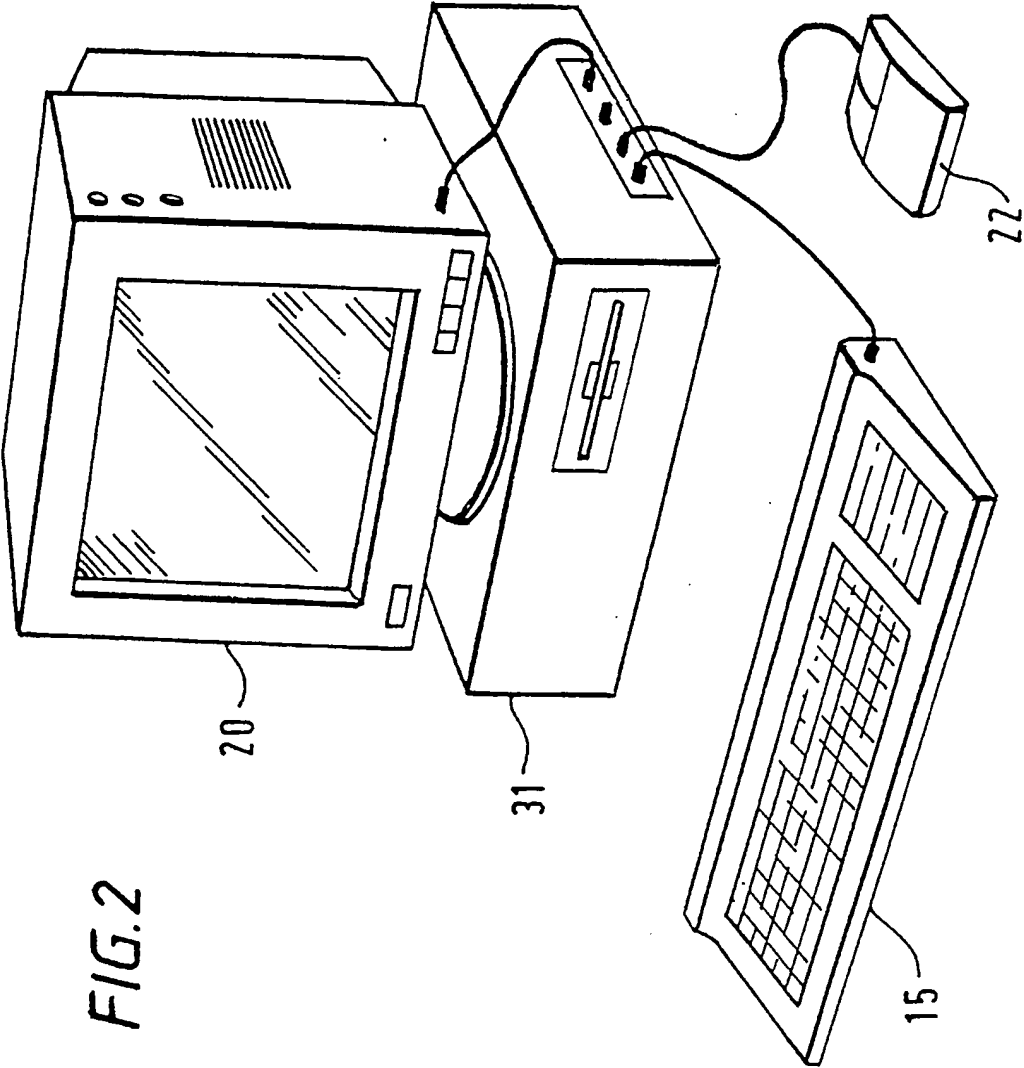
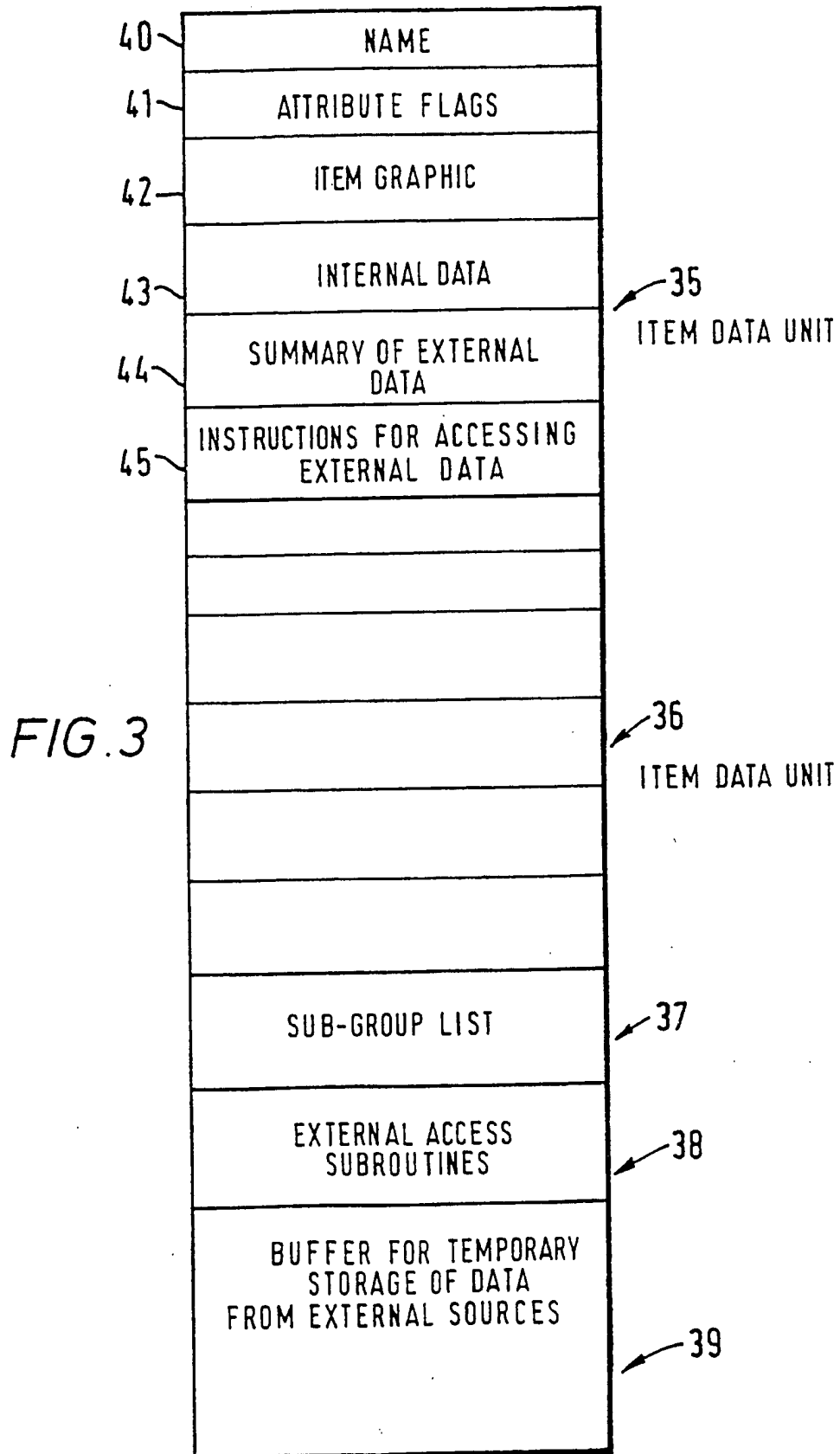


FIG. 2

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ATTRIBUTE FLAGS

GROUPS

ITEMS	GROUPS								HIGHLIGHT FLAGS
	AIR	LAND	WATER	WIND	ANIMAL	CHEMICAL	PETROL	DIESEL	
	PETROL CAR	*					*		
	DIESEL CAR		*					*	
	DONKEY		*		*				
	CAMEL		*		*				
	YACHT			*	*				
	BALLOON	*			*				
	WIND SURF			*	*				
	BUS		*					*	
	FERRY			*				*	
	1	2	3	4	5	6	7	8	

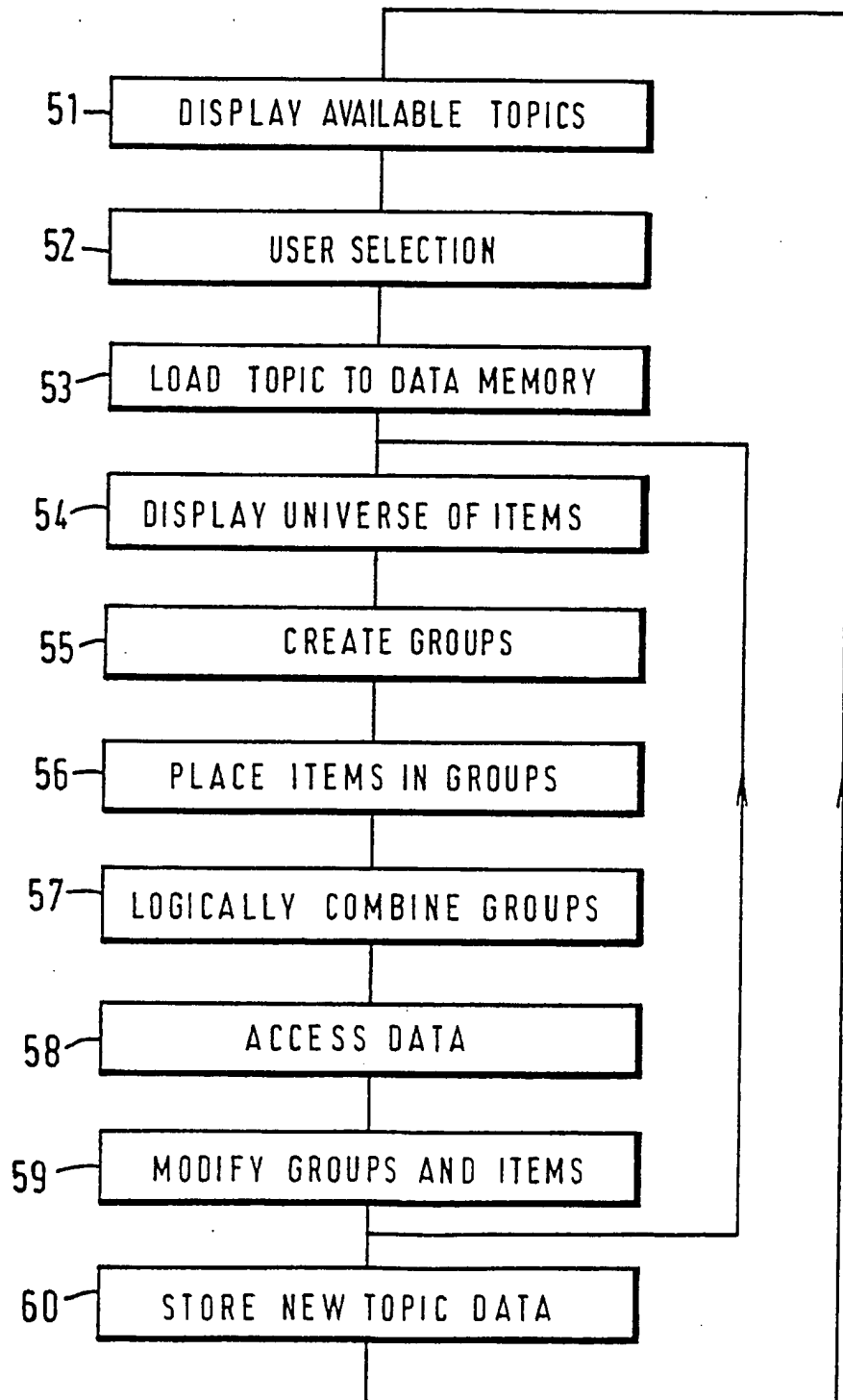
FIG. 4

HAVING SUB GROUPS

GROUP	HAVING SUB GROUPS								SUB GROUP TABLE
	AIR	LAND	WATER	WIND	ANIMAL	CHEMICAL	PETROL	DIESEL	
	AIR	*							
	LAND		*						
	WATER			*					
	WIND				*				
	ANIMAL					*			
	CHEMICAL						*	*	
	PETROL							*	
	DIESEL								*

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FIG. 5



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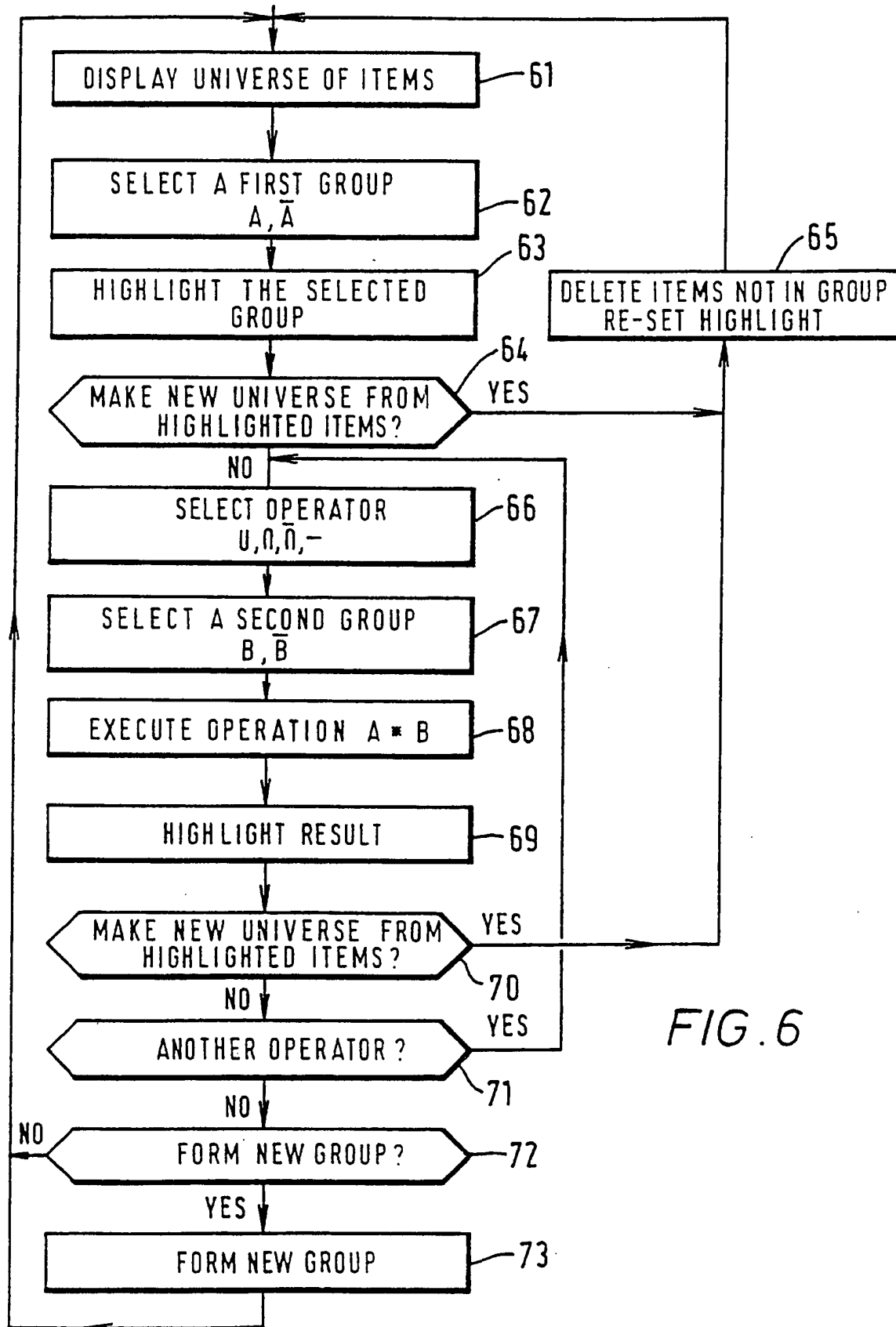
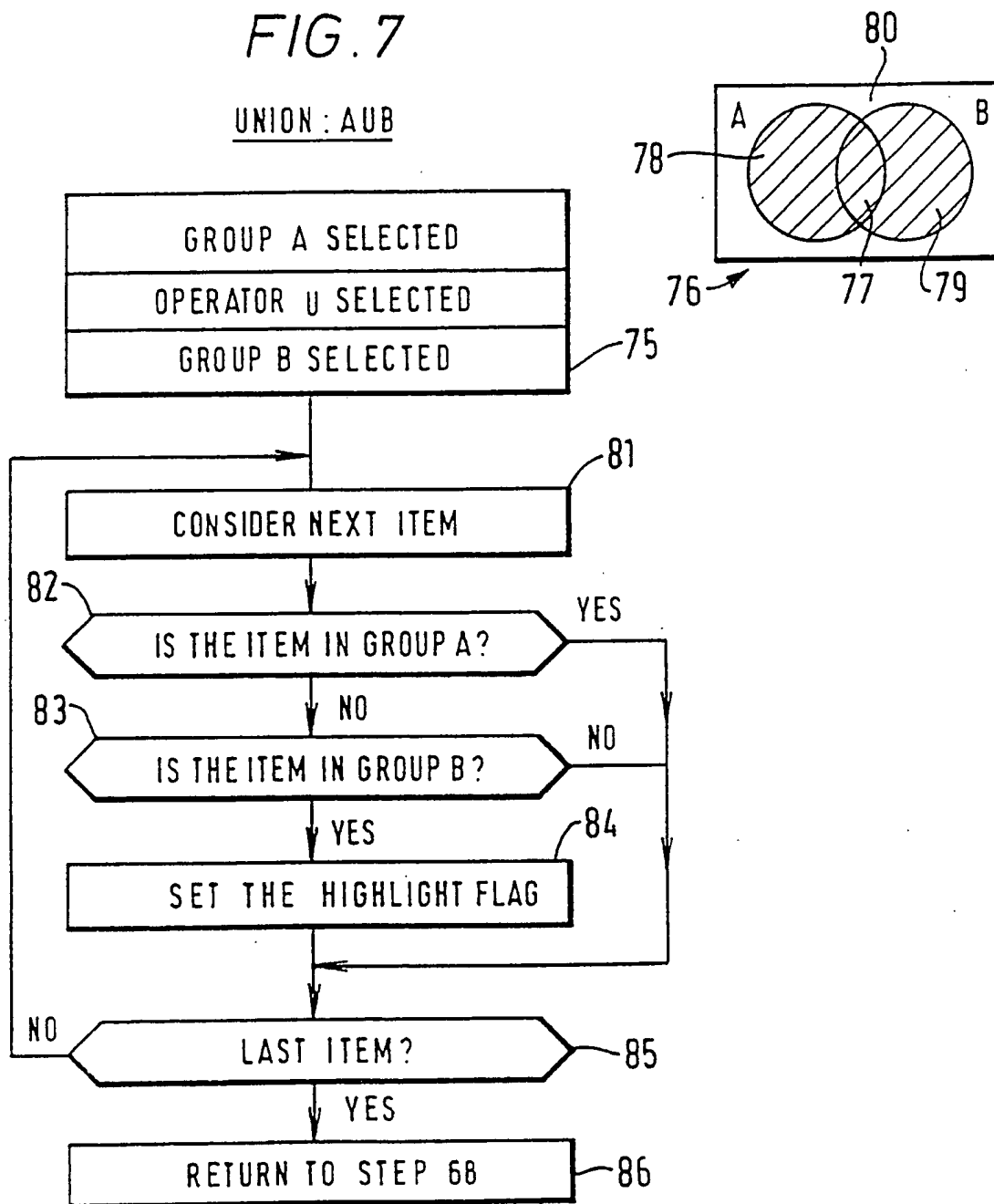


FIG. 6

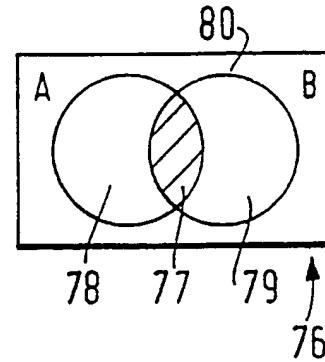
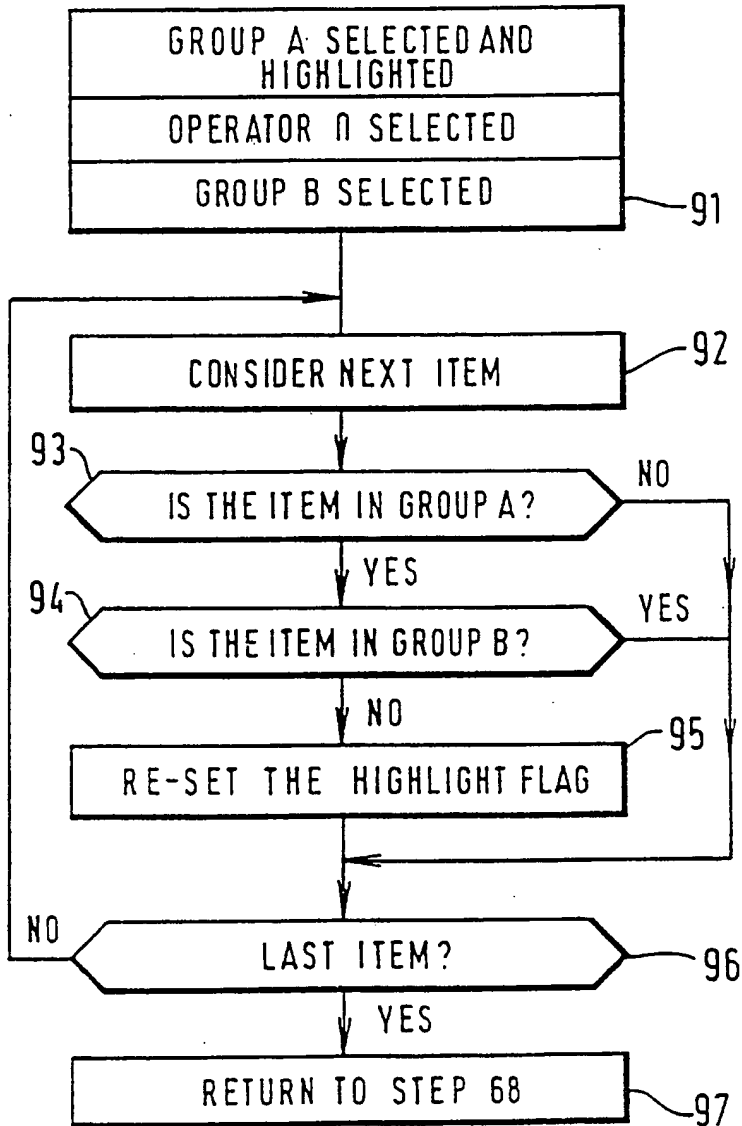
7 / 10

FIG. 7

UNION : AUBEXAMPLE: LAND OR WATER

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FIG. 8

INTERSECTION AND

EXAMPLE: WATER AND WIND

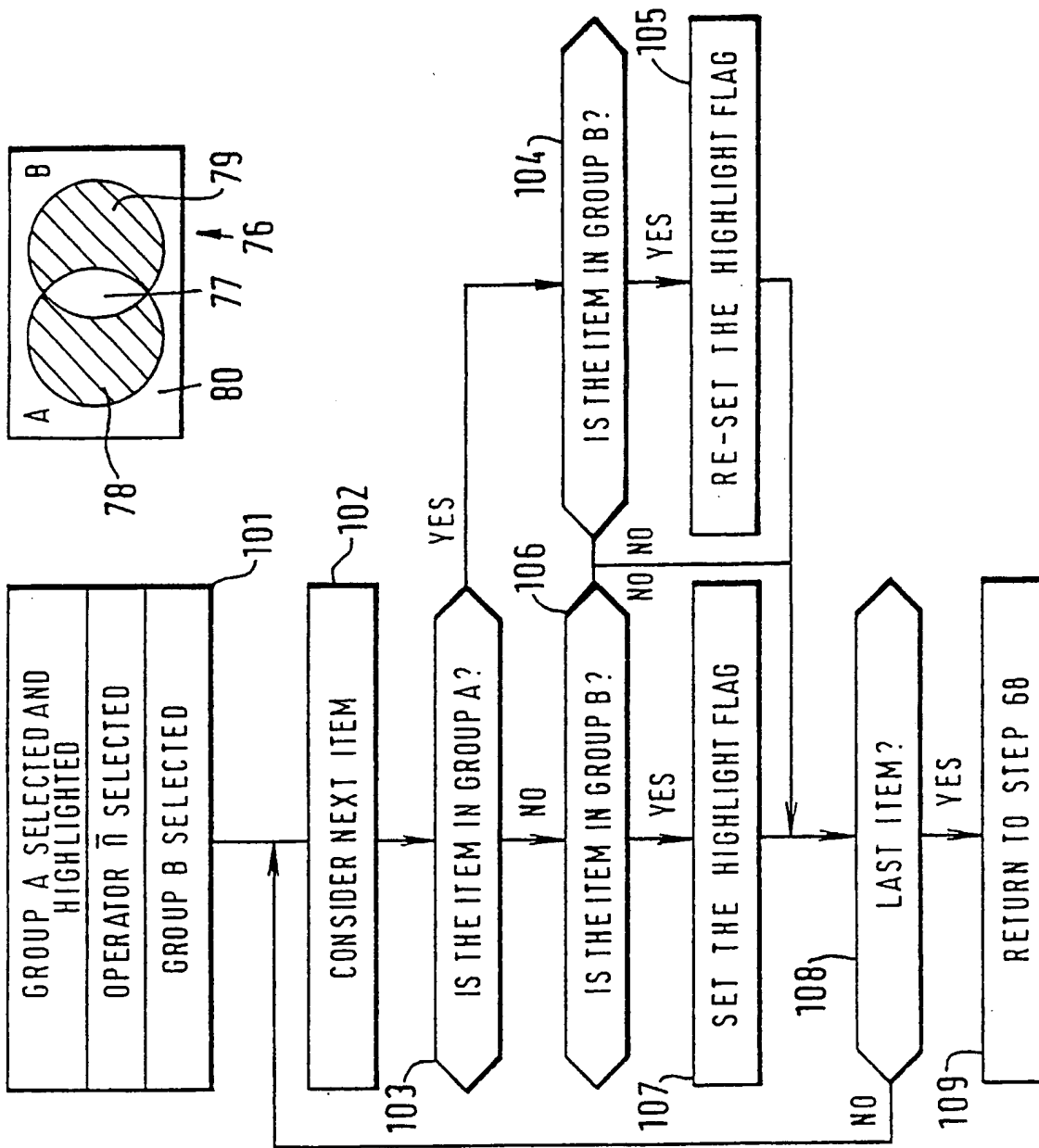
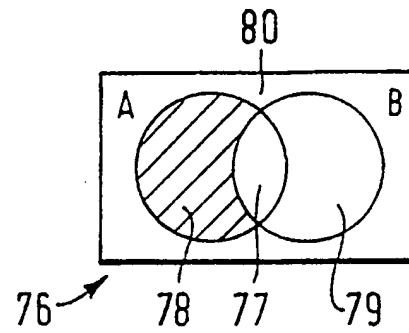
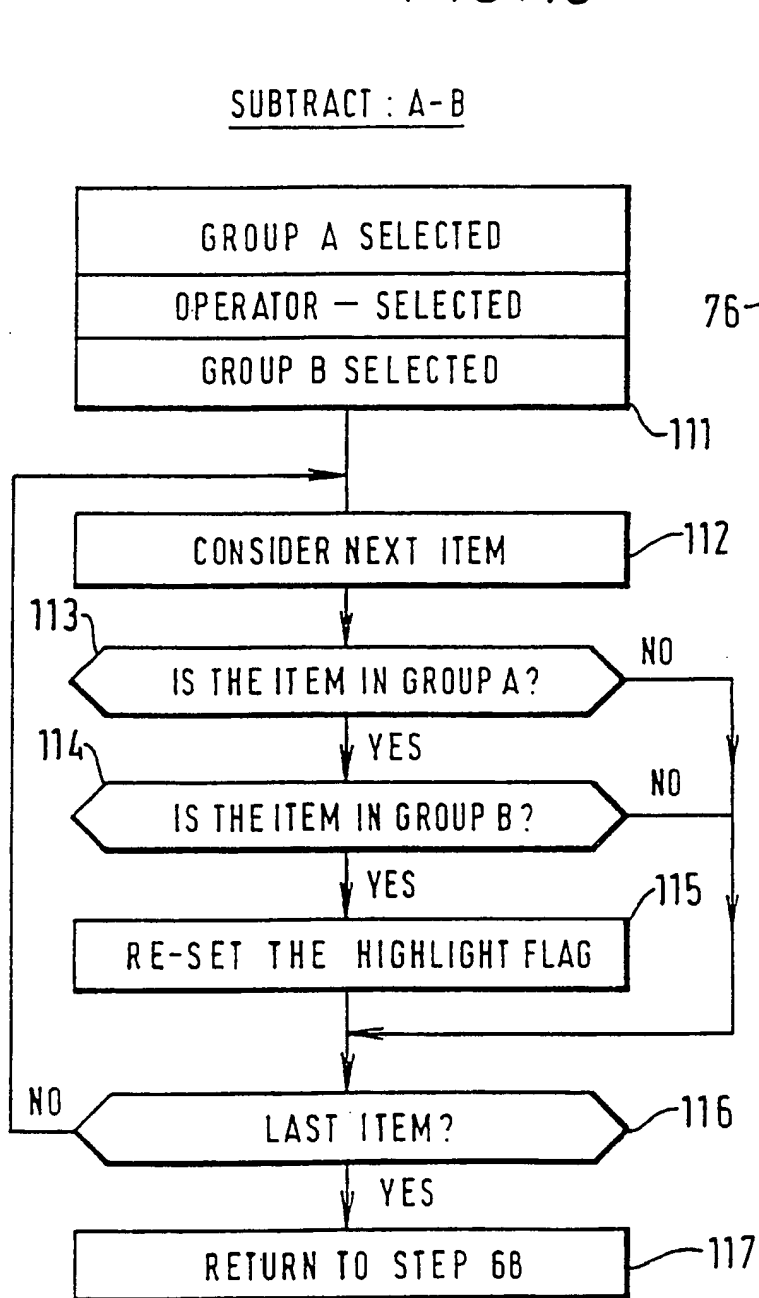


FIG. 10



INTERNATIONAL SEARCH REPORT

PCT/GB 93/00109

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 G06F15/403		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	G06F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
Y	EP,A,0 477 152 (IBM) 25 March 1992 see the whole document ---	1-34
Y	COMPUTER COMMUNICATIONS vol. 13, no. 4, May 1990, LONDON, GB pages 217 - 231 BERRA P.B. ET AL. 'Architecture for distributed multimedia database systems' ---	1-34
A	IEEE WORKSHOP ON VISUAL LANGUAGES, 4 October 1989, ROME, ITALY pages 130 - 137 TSUDA K. ET AL. 'Iconic Browser: An Iconic Retrieval System for Object-Oriented Databases' --- -/--	1,9-34
<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
26 AUGUST 1993		31. 09. 93
International Searching Authority		Signature of Authorized Officer
EUROPEAN PATENT OFFICE		SUENDERMANN R.O.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	SOFTWARE PRACTICE & EXPERIENCE. vol. 18, no. 3, March 1988, CHICHESTER GB pages 169 - 203 KIM H. ET AL. 'PICASSO: A Graphical Query Language'	1,9-34
A	--- IEEE PACIFIC RIM CONFERENCE ON COMMUNICATIONS, COMPUTERS AND SIGNAL PROCESSING, 10 May 1991, VICTORIA, B.C., CANADA pages 277 - 283 SHIROTA Y. ET AL. 'Image Database Construction Tools for RICOHBASE' -----	5,6

GB 9300109
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EP-A-0477152	25-03-92	CA-A- 2050160 JP-A- 4340659	22-03-92 27-11-92
